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ABSTRACT

The Elementary-Middle School (E-M) Development Project was conducted to provide comprehensive and scientific research on objectives, contents, and methods of education in Korea. It provided the basis for development of a new educational system through which major educational problems could be resolved. The project also provided opportunities to use educational research to modernize and reform the Korean educational system. This study examined the impact of the new educational system in the actual sites of instruction within the overall context of education in Korea. The Korean Educational Development Institute (KEDI) accomplished research on the development of a new educational system through four stages: system analysis, system planning, demonstrative implementation of the system, and evaluation of the system's effectiveness. As a result of the new educational system, the students' academic achievement, independent learning attitude, and expressive ability were improved. A positive self-concept concerning academic learning was formed. The quality of school management was improved. The teachers enhanced their subject guidance and instructional skills. The influence of the study on Korean education and aspirations for the future are discussed. (DWH)

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STUDY ON IMPACT OF E-M PROJECT ON KOREAN EDUCATION

Shin Se-Ho, Ph. D.

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Korean Educational Development Institute

STUDY ON IMPACT OF E-M PROJECT ON KOREAN EDUCATION

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PREFACE

This publication is an English version of an earlier research report produced by KEDI. It is a result of KEDI's new effort to distribute its earlier research findings to share the experience obtained in Korean education with the educators, educational researchers and administrators in the international community. We hope that this traslated version of our earlier work will be used as a reference to those in the profession.

There has been quite a number of research reports on the new educational system. Among these, the most significant is the "Report on the Demonstration of the KEDI Educational System" published after the implementations of four small-scale tryouts and five comprehensive demonstrations conducted by KEDI. However, these reports dealt mainly with the direct effects of the new educational system itself. The need was thus felt to produce a report with a broader perspective.

The purpose of this study was to examine the impact of the new educational system in the actual sites of instruction within the overall context of education in Korea. For this purpose, we utilized the following sources of data during the process of completing this research report : reports produced by the demonstration/cooperating schools; data obtained through questionnaires targeted at a wide range of subjects; the expertise, experiences and assessments of researchers participating and observing in the field; and various other reports on the demonstration of the new educational system.

Through this report, we also intended to provide the basis for the completion of "the Comprehensive Report on the New Educational System."

We hope that the contents of this report can be utilized in producing a more comprehensive and systematic research report and in supplying more concrete data and carrying out further analyses.

I wish to express my gratitude to the researchers of this study and other KEDI researches, who assisted them in the collection and analyses of the data for their efforts and contributions during the process of conducting this study.

Finally, I hope that this report can be of use in promoting broader understanding of the effects of the new educational system.

Kim Young-shik
President,
Korean Educational Development Institute

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CHAPTER I. THE ELEMENTARY-MIDDLE SCHOOL DEVELOPMENT PROJECT (THE E-M PROJECT)

1. Characteristics of the Educational Development Project

A. Nature of the research project

In order to comprehend the characteristics of the new educational system, it is necessary to understand the nature and background of the "Elementary-Middle School Development Project". The primary goal of this project was to undertake a comprehensive and scientific research on the objectives, contents and methods of education in Korea for the establishment of a new educational system befitting the demands of Korean tradition and reality, and to develop a new educational system through which the reasonable solutions to major educational problems of Korea can be found. Simultaneously, it also aimed to create opportunities for educational innovations by gradually applying the results of the research to the educational systems across the nation so that education in Korea would be modernized and the new educational system could be indigenous to Korea and be utilized in daily life.

This was the research project which had a direct relationship with the establishment of the Korean Educational Development Institute (KEDI). It included the following activities: research and development of a new and efficient instructional system and school management system for elementary and middle schools; development of various types of high-quality teaching-learning materials which could be put into practical use within the new educational system; and implementation of the use of these materials and gradual universalization when their effectiveness has been confirmed.

B. Background of the research project

The research project for the development of a new educational system was initiated entering into 1970's when the government came to duly recognize the necessity of such an effort to tackle the sources of the problems faced in Korean education.

The government was concerned about educational problems because the successful implementation of an ambitious national development program planned in the 70's was considered to be nearly impossible without the paralled development of the education sector.

For this very reason, the government came to establish KEDI with the consideration that an exclusive facility was necessary to provide comprehensive and specific solutions to various problems in school education.

The need for the establishment of an exclusive research facility was suggested earlier in 1970 by the Long-Term Comprehensive Educational Planning Council. And, at the request of the Korean government, an investigation team led by Dr. Robert Morgan of Florida State University, U.S.A., visited Korea in June, 1970, and studied the actual conditions of Korean education, and consequently, suggested the overall development of a new educational system for elementary and middle schools in Korea.

After the establishment of KEDI, the government enacted the "KEDI Promotion Law" on March, 1973 to secure a firm legal status for KEDI. At the same time, the government decided to bring stability to the management of KEDI by obtaining an educational loan amounting to about seven million and five hundred thousand dollars. In addition, the objectives and functions relative to the establishment of KEDI were clearly stipulated, the contents of which are as follows:

1) to conduct a comprehensive and scientific research on all aspects of education, including educational objectives, contents and methodologies;
2) to develop and diffuse an innovative educational system which

would be suitable to Korean tradition and conditions, and through which several urgent problems in Korean education could be solved;

3) to establish an autonomous educational broadcasting system that would be widely utilized in school education and teacher training; and

4) to conduct research and activities which would be helpful in the formulation of policies and measures to promote learning.

C. Special features of the research project

As shown above, the "Elementary-Middle School Development Project" had, from the start, unique features which were different from previous projects of similar nature.

First, the project was the first educational innovation project conducted on a national scale. Most of the previous research projects had been carried out by individual scholars or educational research institutions for their own academic interests or research purposes. However, this research project was much different in that the need for this one was recognized at the national level and a policy decision was handed down, supporting the study and the establishment of KEDI which would be responsible for conducting the study. Therefore, when the government established KEDI, it was to undertake an educational innovation project of a grand design.

Second, this project was distinctive from the fact that it was a practical effort to innovate Korean education at its origin rather than a simple study for research purposes alone. Also, the purpose was not to bring about partial changes, but comprehensive and structural changes in education.

Third, a special feature of this research project was in that its ultimate aim was to gradually standardize the results and apply them to the educational systems throughout the country. In this regard, there was a great responsibility imbrued in this project. Many previous studies had almost no significance among educational circles and the

adoption of many research results was left entirely up to those in the field. However, this research project was based on the premise that its results shall be administratively diffused across the nation, a premise established during the policy decision-making process. Accordingly, its success or failure was considered to have a profound and wide impact on the entire educational community.

2. Impending Problems of Korean Education

Embarking on the research project for the development of a new educational system, KEDI extensively analyzed the problems in Korean education. Subsequently, the problems which had been hindering educational development in Korea were arranged into the following five categories.

First of the categories is the increase in the population of school-age children and the limited input of educational funds. For Korea, while the amount of educational expenditure invested by the government, in relation to the total national budget, ranked high in the world, the actual ratio of educational expenditure per student was much lower. While the amount of educational investment expanded annually, the effect of the increased investment was largely offset by increasing number of the school-age population. It was necessary to devise measures to enhance the effectiveness of limited financial investment within the limits of the amount provided for educational finances. To do so, an improvement in the school education system was necessary.

Second, the level of the student achievement was declining. It was a well-known fact that quite a number of graduates from primary schools in Korea were not equipped with basic academic abilities. This meant that the qualitative outcome of Korean education had not been satisfactory. The reasons for this qualitative deterioration of education can be given especially through the following.

1) As mentioned, the scale of education was expanding abnormally due to sharp increases in the school-age populace, and educational facilities and conditions in remote mountain areas were inadequeate because of the inadequacy in the management of those schools.
2) The current incentive programs in the teaching profession was too weak to recruit and retain quality teachers and the morale of teachers was greatly lowered.

Third, teaching-learning methods used in Korea were out-dated. While changes were occurring at a rapid pace and the society becoming more complicated and diverse, long, labor-intensive and uniform lecture style of teaching has been prevalent in the classrooms of Korea. While many studies were done and various methods were put into practice to improve teaching-learning methods, not one of them has fundamentally improved or changed teaching in the instructional field. As it was, instruction for individualized learning or independent learning considering each student's capability for learning or individual characteristics were not practiced at all.

Futhermore, the teaching-learning media were so far from being modern that they virtually did not exist. In most cases, a black board, white chalks, textbooks and notebooks were regarded as sufficient, and the only medium of communication were teacher's oral presentations and the printed examination paper. Under such conditions, it was almost impossible to improve the quality of education.

Fourth, there also existed severe regional differences in the quality of education provided. Such regional differences are evidenced by the results of national-level acadmic achievement tests. Qualitative differences were also often found between cities and countries and between the down-town area and the outskirts. According to a recent psychological opinion regarding learning, when certain tasks are not sufficiently learned by a student and it causes a learning deficiency, this is believed to cause a phenomenon known as an accumulated learning deficiency by hindering the learning of future tasks which the student is tasked to learn. Individual differences in student's academic

ability are found to be originated mostly from this phenomenon. In light of the functional definition of compulsory education, which is aimed at providing the basic education necessary for the citizens, regardless of the individual's economic status, ability and place of abode, if an individual is provided with an inadequate education simply due to the area in which he/she resides, it will not only deviate from the basic spirit of compulsory education but will cause unequal opportunity of education. By principle, conditions that would guarantee equal educational opportunity and accessibility should be provided for all citizens.

Fifth, education to improve one's ability to adapt to the present and future environment was lacking. What we hoped to accomplish through education was to cultivate the students' ability to rationally and efficiently solve the problems they will face in the future. The effort given for education in Korean elementary and middle schools was largely limited to meeting the educational objective to merely improve knowledge and skills. Even at that, the outcome had not been very satisfactory. Thus, graduates from elementary and middle schools were experiencing difficulties in continuing their education, and in many cases they were even losing their motivations to learn. They were also neither equipped with a higher learning thought capacity, such as the ability to solve problems, to judge and to criticize, necessary to adapt to the present society, nor were they provided with desirable affective behavioral characteristics, such as attitudes, value systems and interests. Under the existing circumstances, the Korean school education could provide neither learning experiences of higher quality nor education necessary for the students to be able to adjust as adults. In sum, the educational objectives and processes have not been corresponding to the demands of the Korean cultural tradition, social reality and the prospect of the future.

3. Development of a New Educational System

A. Need for the development of a new educational system

The measures to solve many problems faced by Korean education can be approached from various angles. A record-increase in educational investment, unprecedented improvements in consideration of the teacher's salary, and radical renovations in the current educational system are said to be solutions that can easily be considered. But as it is, an increase in educational investment can not be expected considering the national financial situation which is approaching to limits becuase of a tremendous amount of investment urgently needed for economic development and defense expenditures. The raise in the teacher's salary is also limited to a fixed amount because of factors concerning national finance and because of the principle of equity in the nation-wide wage policy. In addition, changes in the educational system, in most cases, can not be in the form of a radical reform because the changes themselves may exert a tremendously adverse influence.

Not one of the above-mentioned approaches can easily be adopted and, if one of them is adopted it is necessary to recognize that it does not guarantee a desirable solution for current problems in education. The reason is that educational problems do not result from the deficiency or problems in one particular aspect but from various aspects with complex interactions.

Considering these circumstances, KEDI regarded the development of a new educational system to be inevitable. In order to promote qualitative improvements in education while making the most of various conditions under which the Korean educational system existed, the improvement of the existing school educational system was considered to be most valid. The improvement of the school educational system meant changes within the school management, and since, among those changes, it was especially aimed at bringing educational improve-

ments through reasonable and effective learning activities, it did not necessarily require an unprecedented, expansion in educational investment nor a radical reform of the system.

B. Characteristics of the new educational system

In efforts to improve the new educational system, KEDI tried to devise a new educational system which would be adaptable to the educational reality of Korea and which would meet educational demands of the future Korean society. For these purposes, KEDI referred to a wide-range of foreign educational theories and research results while conducting an in-depth analysis of the educational condition in Korea. Through the series of basic studies, it prepared a model for the new educational system consisting of the following characteristics.

First, the theoretical basis of the new educational system was provided by the systems approach. It had been a general tendency of most of the previous studies to deal with only an aspect of various factors which constitute the educational system. But KEDI's research was intended to study the ways to improve all the factors that constitute the educational system comprehensively and systematically.

Second, the new educational system utilized an advanced theory of educational technology. By electing to use the broacasting media, technologically-advanced communication equipments such as TV and radio, its purpose was to maximize the effects of teaching and to heighten the productivity of educational investment from a long-term perspective.

Third, the development of various types of teaching-learning materials became possible. The results of the research on educational system were not presented as simple theories or models, but rather, as specific learning materials aimed to obtain practical outcomes. The new educational system thus developed was divided, for the sake of convenience, into two parts, the instructional system and the school

management system, for both of which a detailed description of contents will be given in the following chapter.

CHAPTER II. THE NEW EDUCATIONAL SYSTEM

1. The Purpose of the New Educational System

One way of describing a complex project is first to define the major goals of that project, and then to state the specific means to attain the goals. We think there are at least two sets of goals; one in terms of intrinsic goals and the other, pay-off goals.

A. Intrinsic goals

The intrinsic goals describe the experiences pupils should be having when the new educational procedures have been developed to its maximum effectiveness. Therefore, these goals will serve both as the criterion and the direction toward which planning, implementation, field testing, revision, and other development activities are aimed and evaluated. Thus far, we have been able to identify six intrinsic goals of the E-M Project which may be stated as follows.

First, Individual students are provided with more learning experiences with special emphasis on the development of higher mental processes such as problem solving, critical thinking, and creative production. Basic knowledge and skills indicate one's stock of vocabulary, ability to read, write and calculate, to comprehend basic mathematical concepts and so on. While in the present schools, the development of such basic knowledge and basic skills is seldom ignored, the new education system provides more concentrated and organized experiences to the students in these areas. Simultaneously, it emphasized the development of higher learning throught processes such as problem solving and the critical and creative thinking abilities.

Whether it is from the standpoint of adapting to today's changing society or for the maximum cultivation of each individual, the development of these higher learning thought processes was considered to be

the most important objective of education. Breaking from the current educational system which verbally emphasizes the necessity of the development of higher learning thought processes, the new educational system made it possible for numerous learning activities, which are directly connected to the cultivation of the higher learning thought processes, to take place in the instruction site by supplying teachers with the necessary learning materials.

Second, individual students are provided with more learning experiences for internalization and acquisition of values and attitudes, productive skills and knowledge that are uniquely needed for national development. Under the new educational system, the cultivation of student's affective characteristics such as their values and attitudes, which are directly connected to national development, are emphasized in the educational processes. Therefore, the affective goal of education can be directly related to the practice of education, and it can be permeated through and reflected into the educational activities more systematically.

Additionally, the new educational system puts its emphasis on the learning of basic concepts and principles as the basis of the student's preparation for his or her career. As the demands from professional and technical occupations in various fields will increase in Korea in accordance with its industrialization trends, innovations in vocational education as well as in science education are absolutely necessary. It is particularly necessary to cultivate the student's ability to carry out his or her obligations in his or her future occupation, whenever it is necessary and when trained, by adapting himself/herself to the rapidly changing socio-economic conditions.

Third, learning progresses of individual students are periodically monitored, and the results are utilized as the feedback into the teaching-learning processes.

Even under the existing educational system, many teachers understood, to a certain extent, the degree of their students' learning. However, in the new educational system, students would endeavor

themselves to accomplish the objectives of their lessons more effectively and continuously within given periods of time. Teachers will conduct periodic evaluations, assess and classify each student's degree of achievement of given learning objectives, and provide, according to the results, necessary learning materials and opportunities for supplementary and enrichment learning.

Fourth, Individual students have more opportunities for self-directed learning. In the new educational system, the independent learning opportunity in which students actively participate will increase. In independent learning, discussion methods, observation, experimentation methods and programmed learning are utilized. Learning materials required in the operation of this independent learning process are supplementary and enrichment learning materials, programmed learning materials, student workbooks and teacher's guides.

Fifth, a variety of learning resources through supplementary instructional materials and media are available for mastery of major learning tasks. The enrichment learning is for students who complete given courses and supplementary learning is for those whose learning is deficient. The flexible class organization indicates and attempts to organize classes more effectively for the accomplishment of the teaching objectives in any given hour through consideration of each student's degree of learning achievement, the available learning media and subject contents.

Sixth, individual students have access to a variety of learning resources and measures such as supplementary and enrichment programs, and flexible classroom organization adapted for individual differences in learning rate.

B. Pay-off goals

There are another set of goals which Scriven has termed "pay-off" goals. Pay-off goals are, in the context of the E-M Project, long-term

effects or outcomes of the new educational system when it is fully implemented in nation-wide schools. They also provide ultimate criteria by which the system designs and their effectiveness are evaluated. Five pay-off goals have been identified.

First, higher achievement tendency (a significant increase in the student mastery rate) is observed among students. The new educational system distinguishes between superior learners and slow learners, providing different learning materials to each group and allowing them opportunities for independent learning. It identifies those students deficient in their learning with diagnosis tests and provides them with opportunities for supplementary and enrichment learning. It also encourages the utilization of various media and allows teachers to concentrate on their teaching activities and student guidance.

Second, higher cost-effectivness is obtained. Raising the profitability of the educational expenditure implies raising the productivity of educational system with maximum outcome to given input of certain educational expenses. The degree of learning achievement and the individual'a life income may become the output index. The new educational system pursues to raise the productivity of educational investment by seeking measures to produce maximum educational outcome without increasing the quantity of the present teachers, students, facilities and financial resources.

Third, regional gaps in the quality of education and school differences are reduced. Qualitative differences in education imply the changes in the degree of student achievement because of the differences in teacher quality, teaching-learning materials and methods of school management.

In the new educational system, diverse teaching-learning materials can be utilized and high quality educational TV programs can be used throughout the nation, resulting in the increases in educational productivity as a whole. Consequently, regional and individual school differences will be reduced.

Fourth, Educational opportunities are expanded for more children

and adolescents. The extension of educational opportunities will bring an increase in the rate of school attendance among school-aged children and in the rate of participation in social education programs by youths and adults who do not attend schools.

With the establishment of the TV stations, regular school instructional TV programs and social education programs for teenagers and adults who could not attend schools can be broadcasted. Air and correspondence high school lessons can be aired through radio networks. These programs would greatly expand the educational opportunities of both youths and adults.

Fifth, the sense of accountability and credibility of the general public on school education is boosted up. In the new educational system, improvements in the quality of school management will become possible through the use of modern management methods. And, the instructional skills of teachers will be improved as the result of various training programs, including occupational training and field training. The new system would allow these teachers to be in active charge of student guidance, using the most advanced teaching methods, diverse teaching-learning materials and the instructional media. With these changes, the degree of student learning achievement will be vastly improved, to the extent that a greater trust in school education is realized on the part of the parents and the general public alike.

2. Instructional System

The instructional system includes the range of activities that teachers and students must follow in order to achieve the objectives of instruction and encompasses the organization of teaching-learning materials needed in the management of the system.

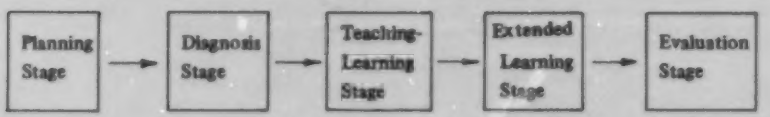
The instructional system consists of an instructional system model, which has the characteristics of the instructional system, and teaching-learning materials, which externalize such characteristics.

A. General model of instructional system

The general model of the instructional system constitutes the framework of KEDI's instructional system and is a type of instructional process model which suggests the procedures and principles that all the instructional activities should follow under the new system. This model: 1) was devised for teachers to continue those lessons which considered individual differences as much as possible without adding excessive burdens on them under current conditions in which the number of students in one class amounts to seventy or eightly; and 2) has a distinct characteristic in that the progress in the level of a student's learning is periodically examined and appropriate supplementary measures were provided. By doing so, this model aims to reduce the accumulation of learning deficiency and to maximize student learning achievement.

For such aims, the model consists of the following five stages in the unfolding of the instruction in all learning tasks.

Figure II-1 KEDI's General Model of Instructional System



In the "Planning Stage", teachers plan instructions for the orientation of certain learning tasks. In the "Diagnosis Stage", teachers diagnose whether or not the students are prepared to learn these learning tasks, and then if necessary, they make appropriate provisions for remedial work. In the "Teaching-Learning Stage", intensive teaching-learning activities are carried out to attain the mastery level of the objectives of the instruction. In the "Extended Learning Stage", teachers confirm the degree of student learning achievement accomplished in this stage. Then, based on the results of formative tests, the students are provided with enrichment or remedial instructions. In

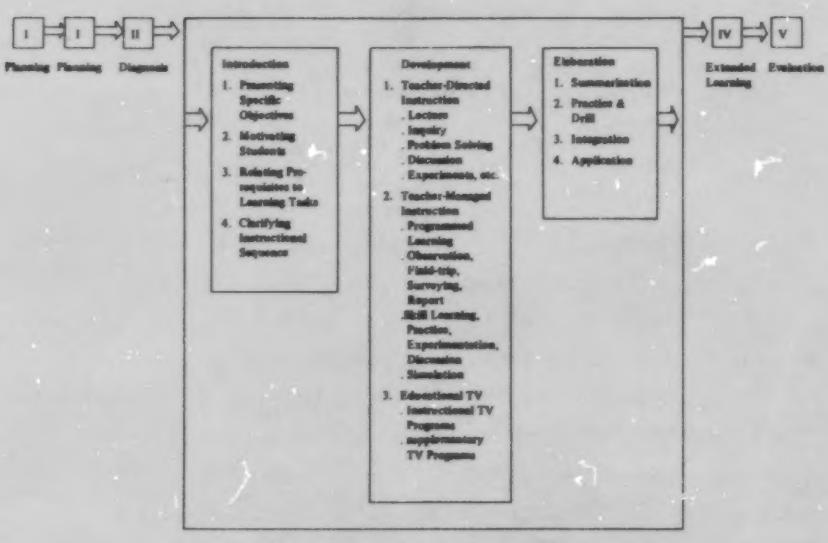
the "Evaluation Stage", at the completion of instruction for a learning task or tasks, a summative evaluation is conducted.

More detailed instructional activities in each stages are described as follows.

1) Planning

In planning instruction for a learning task, the most important precondition is to identify the instructional objectives and their interelations through task analysis. This task analysis along with the detailed teacher's guide for each instructional unit will be made by the KEDI research team and distributed to individual teachers. The teacher should have a clear understanding of the terminal objectives and the structure of the learning task through careful study of the teacher's guide. As it is shown in Figure 2, teachers are also supposed to finalize lesson and management plans.

Figure II-2 Planning Stage



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Lesson plans are included in the teacher's guide, but the teacher needs to make some modifications so that they fit the characteristics of the community and particular students in her class. In other words, the teacher should make detailed plans for student learning activities as well as instructional activities, using the teacher's guide as the guideline. The teacher should make provisions for latent curriculum and make a plan for evaluation activities. KEDI will send the ITV schedule to each individual teacher but the detailed daily time schedule is the responsibility of each individual teachers, who also must plan for use of special facilities or equipment if they are needed.

2) Diagnosis Stage

The second stage is diagnosis. The purpose of this stage is to identify students' deficiencies in the prerequisities for the learning task and provide them with remedial instruction at the outset of instruction. If diagnostic tests show that students have major deficiences in their prior learning, a remedial program should be provided to make up the deficiences whenever possible. For example, when the lesson unit is division, students should have mastered multiplication previously. Therefore, the teacher should identify and help those students who are having difficulty in multiplication.

Although it is not always necessary to have a diagnostic test at the beginning of each unit in all subjects, in science and mathematics such prior testing is usually done. Diagnostic tests and teacher's guides for their use have been developed by KEDI. Teachers' guides also contain suggestions for remedial instruction for students with deficiencies. On the bases of diagnostic test results, the teacher should provide appropriate learning experiences for each student. The students who have mastered previous learning tasks can either help other classmates or restudy the unit.

The students who have minor deficiencies can either study independently at home with programmed materials and/or workbooks or get some help from more successful classmates. In the following class

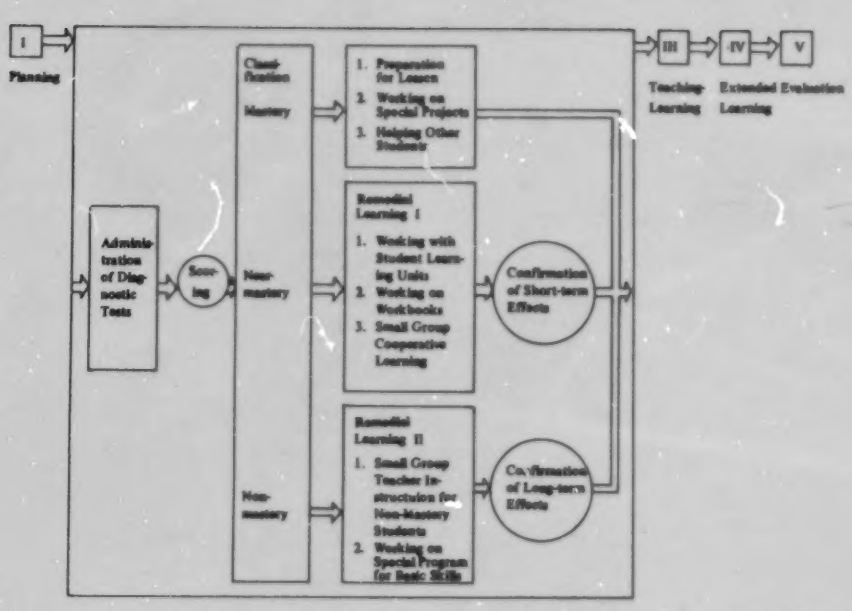

Figure II-3 Diagnosis Stage

session, the teacher needs to check on the assignments and be sure all students have mastered the necessary learning tasks for the lesson unit. The students who have serious deficiencies may have teacher-directed small-group remedial instruction. It can be one or two-hour program, or a semester-long special program to improve reading or arithmetic skills.

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3) Teaching-Learning Stage

As Figure II-4 reveals, actual teaching and learning activities take place and approximately two-thirds of the total instructional time is spent in the Teaching-Learning stage. This stage can be further divided into three steps: Instruction, Development, and Elaboration.

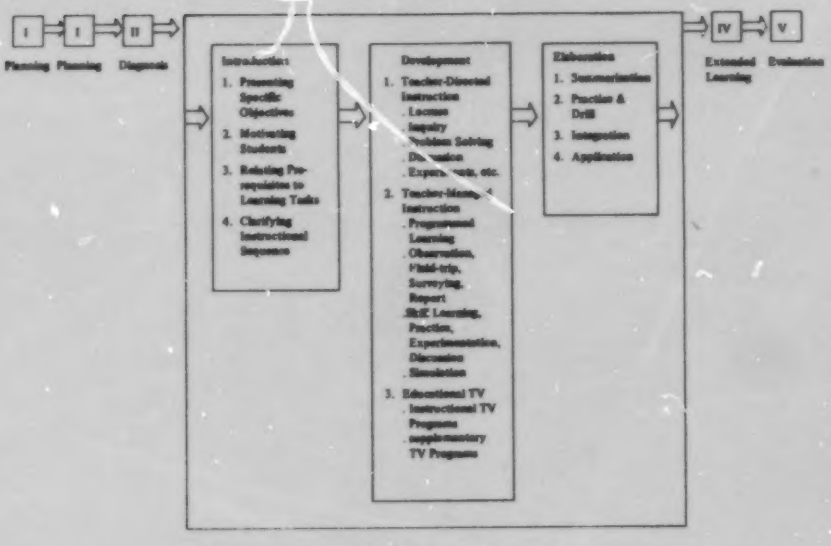

Figure II-4 Teaching-Learning Stage

In Instruction, teachers are encouraged to use the teacher's guide prepared by KEDI to clarify instructional objectives for their students, and to relate a student's previous learning to the present learning task.

in Development, the content of the instructional unit is presented to students who respond to the stimuli to attain the mastery of the task(s). A teacher may direct instruction by using the teacher's guide developed by KEDI, or may manage ITV or programmed instruction, or student discussion.

The last step of Teaching-Learning is Elaboration. In Elaboration, the teacher summarizes what has been studied, ensuring student learning through practice and drill, and helping students make applications and generalizations from what they have learned.

4) Extended Learning Stage

Administration of formative tests, and provisions for enrichment, accelerated and supplementary learning are the major activities in the

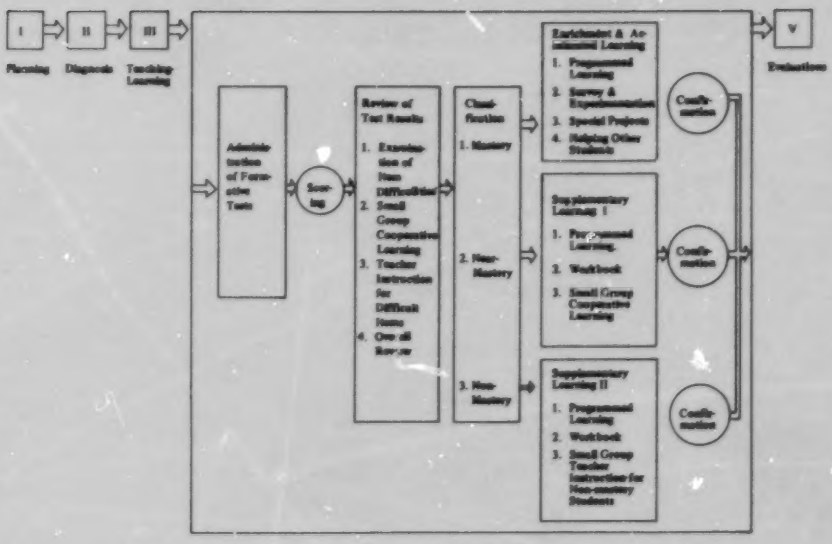

Figure II-5 Extended Learning Stage

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stage of Extended Learning. Formative tests are given to students in the course of instruction in order to identify particular difficulties and to improve instructional activities and strategies.[1)]

It would be desirable to have the formative test every two or three lesson hours, but because of the shortage of time the KEDI instructional system model requires such evaluation only once for approximately every four lesson hours. Teachers use the evaluation materials developed by KEDI.

As a result of the evaluation, teachers are able to identify the particular difficulties encountered by students and thus give more individualized assistance. Also, teachers are able to classify students into three categories: mastery, near mastery, and non-mastery.

To those who achieve complete mastery of the task, special projects or programmed instruction are provided for enrichment, and sometimes these students also reinforce their learning by helping other classmates. To those who achieve only partial mastery of the task, programmed or other instructional mastery of the task, programmed or other instructional materials are specified for independent learning. Sometimes, these students get help from those who have achieved complete mastery of the task.

The teacher himself used the programmed materials and workbooks to give compensatory lessons to those who have greatest difficulty with the task. He also personally checks the student's work to ascertain the results of the enrichment and supplementary learning experiences.

5) Evaluation Stage

Evaluation is the last stage of the KEDI Instructional Model. In this stage, summative tests are administered to students for the purpose of evaluating student achievement on major instructional objectives in

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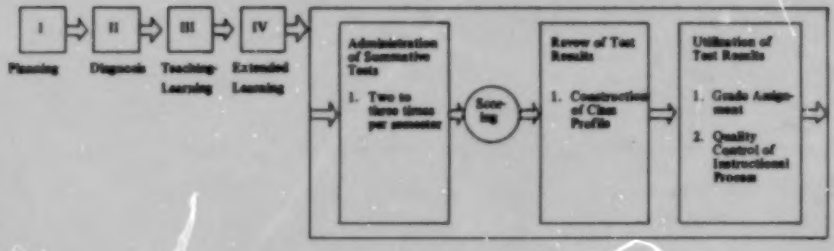
1) Chung Kyu Whang, *Educational Evaluation* (Seoul: Jae Dong Moon Wha Publishing Co., 1973), pp. 161-185.

the cognitive, affective, and psychomotor domains as well as evaluation of unintended educational effects.

A summative test may be given at the completion of each unit but to avoid the drastic reduction of instructional time this causes, the KEDI Instructional Model requires a summative test only after completion of two to three instructional units. Although KEDI provides teachers with test items and other evaluation materials in all the subject areas, teachers may decide to use their own tests. With the test results, teachers construct a classroom profile of student achievement in each subject area, and assign grades to students. A teacher can also use these results to evaluate the effectiveness of his/her own instruction.

Figure II-6 Evaluation Stage



B. Teaching-learning materials

The purpose of teaching-learning materials is to assist in the smooth operation of instruction by foreseeing various situations that might occur when teaching-learning activities take place between the teacher and students, establishing plans to meet with those situations and providing all sorts of suitable information.

Teaching-learning materials also constitute an importance aspect of the characteristics of KEDI's new educational system. They are mainly classified into two types: printed materials and broadcasting materials. The printed materials include teacher's guides, student workbooks and various types of evaluation materials. The broadcasting

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materials include Instructional TV and radio programs. The teaching-learning materials which are provided at each stage of the instructional process are charted in Figure II-7.

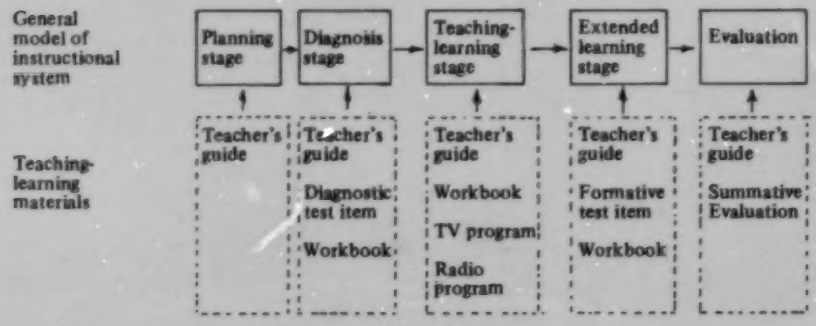


Figure II-7 Teaching-learning Materials Utilized at Each Stage

1) Teacher's guides

They are utilized as both learning guides and instructional activity guides suggesting comprehensive and practical measures for entire classroom activities vital to KEDI's instructional system. These materials are very important in that they include specific guides for the instructional activities of all the stages(five stages), which are suggested in the general instructional system model, and for the entire instructional activities that the subject instructional system models require. Instructional guides specifically suggest procedures, extending from the operation plans for the educational curricula by subject areas and grades, through unit development planning by subject areas, to the hourly teaching-learning activities. They also include evaluation activities and other guiding principles and materials necessary for the entire teaching-learning process. Specifically, they are as follows: instructional planning and reference materials for the planning stage; materials and operation principles for diganosis and remedial work at the diagnosis stage, workbooks for the entire hour of learning

activities at the teaching-learning stage, guides for the TV and radio lessons, materials and guides for confirmation learning (formative evaluation) and supplementary and enrichment learning at the extended learning stage, and guides for the comprehensive evaluation during the evaluation stage.

Since these instructional guides are developed to extend through all of the subject areas, units and hours of subject grade level, they cover the widest range of KEDI's teaching-learning materials.

2) Student workbooks

Student workbooks enable the students to complete their learning tasks and facilitate new learning in all teaching-learning activities. These workbooks are not so much simple exercise materials or supplementary learning materials which are utilized to enrich the student's learning experience. But rather, they are the very lesson materials which enable the students to fully understand their learning objectives and suggest practical and basic learning tasks necessary for the accomplishment of objectives.

The workbooks include diagnosis learning questions which are utilized in the diagnosis stage and preparatory learning materials for the correction of learning deficiences. In the teaching-learning stage, they provide materials necessary for solving learning tasks of all kinds including those of teacher-initiated instruction, student-initiated learning and TV and radio instruction. They also offer specific requirements, questions, and problems, as well as margins in which students can take notes or arrange their thoughts on given requirements, questions or problems. For the extended learning stage, confirmation learning questions are suggested so that students themselves might examine their learning progress up to this stage, and according to the results of the examination, supplementary or enrichment materials are provided so that they can be utilized according to their capacities.

In the case of primary schools, entire sets of materials are used in the diagnosis, teaching-learning and extended learning stage, and are

developed for four textbooks, namely, Korean Language, Social Studies, Arithematic and Science. However, in the five textbooks for Moral Education, Physical Education, Music, Fine Arts and Practical Arts, only those materials that are used in the diagnosis and extended learning stages are developed.

3) Evaluation materials

Evaluation materials which are utilized in KEDI's instructional system are largely classified into three types; diagnosis materials (diagnostic evaluation) which is utilized in the diagnosis stage; confirmation materials (formative evaluation) which is utilized in the extended learning stage; and summative evaluation materials which are utilized in the evaluation stage. It was to eliminate the general tendency of associating the term diagnostic evaluation with "evaluation" and to make people understand it as part of the learning process.

The above diagnosis learning and confirmation learning questions are bound together in the volumes of workbooks to emphasize their functions as learning materials. But the summative evaluation materials are separately provided so that they may be utilized for evaluating student achievement. All these materials are developed for all subject areas.

4) Instructional TV and radio programs

The Instructional Television (ITV) and Instructional Radio (IR) programs can be said to be two of the most distinct and unique innovations among the wealth of KEDI's instructional materials. They are utilized in the teaching-learning stage. One of the characteristics of KEDI's broadcasting media is that they directly take charge of certain parts of classes especially selected for instructional broadcasting; they do not consist of merely simple educational broadcasting materials. In this regard, KEDI's broadcasting program is distinguished from the mastery learning method in which regular educational curricula completely depends upon broadcasting instruction, from the enrichment

method which utilize broadcasting media to enrich learning experience, and from the methods which utilize them periodically as supplementary materials. In general, the TV instructions are selected for the following.

(1) Classes in which the change process, by time and space, of certain objects is to be taught.
(2) Classes that need to be continued by changing the learning site by time and space.
(3) Classes that require partial or total dramatization
(4) Artistic and athletic instructions that require the creation of certain emotional environment.
(5) Classes requiring resources personnel who are not easy to invite, or objects or places which are hard to observe.
(6) Lessons that are dificult to be successfully taught in ordinary classes or lessons in which a direct demonstration and experimentation is hard to be carried out.
(7) Classes which require audio-visual facilities or other educational equipments that are hard to utilize in ordinary classes
(8) Classes in which learning effects can be raised through the technical mechanism of television.

On the other hand, selection of radio instruction is based on the following.

(1) Classes which aim to obtain particular learning effects only through the discrimination of sound or other appeals to the auditory sense.
(2) Classes in which learning effects can be raised through auditory dramatization.
(3) Classes which intend to promote students' listening comprehension and to accelerate their interest and motivation in dealing with certain learning contents.
(4) Classes that can be proceeded interestingly and effectively through story-telling or simple narration alone.

(5) Classes that need auditory materials which the teachers have difficulty preparing in the field.
(6) Classes that need the creation of a unique environment which is difficult to be created through words or visual materials alone.
(7) Classes that need to appeal to a student's fantasy or imagination.
(8) Classes that require integrated auditory learning experiences both in time and space.

3 School Management System

A. Development objectives of the school management system

The school management system is not only a support system which contributed to the smooth operation of the new educational system but also a system which systematically integrated all the subordinate factors of a school system in the circular flow of planning, implementation and evaluation in order to maximize the efficiency and productivity of school management.

By placing emphasis on the development of a system which can solve and improve various problems of school management and which can support instructional activities effectively, the objectives of the school management system were established as follows.

1) All school management activities ought to be executed according to the objectives set forth and their accomplishments must be evaluated periodically. Evaluation results must be efficiently applied in improving the school management system.
2) Management objectives shall be established with the consensus by all teachers and each teacher should control learning tasks in accordance with the objectives in the implementation process.
3) In the decision-making process, the opportunities for voluntary participation and group-thinking on the part of teachers shall be

expanded.

4) Educational curricula can be normally operated when time-allotment standards for the curricula are faithfully observed.
5) Teaching-learning groups are flexibly organized and operated.
6) Research opportunities ought to be increased so that teachers' professional instruction ability may be improved.
7) By the process of the management of school affairs and clarifying the limits and bounds of the teacher's role in and responsibility for school affairs, the teacher's burden may be alleviated.
8) The degree of preparation and utilization of basic facilities and media should be heightened.

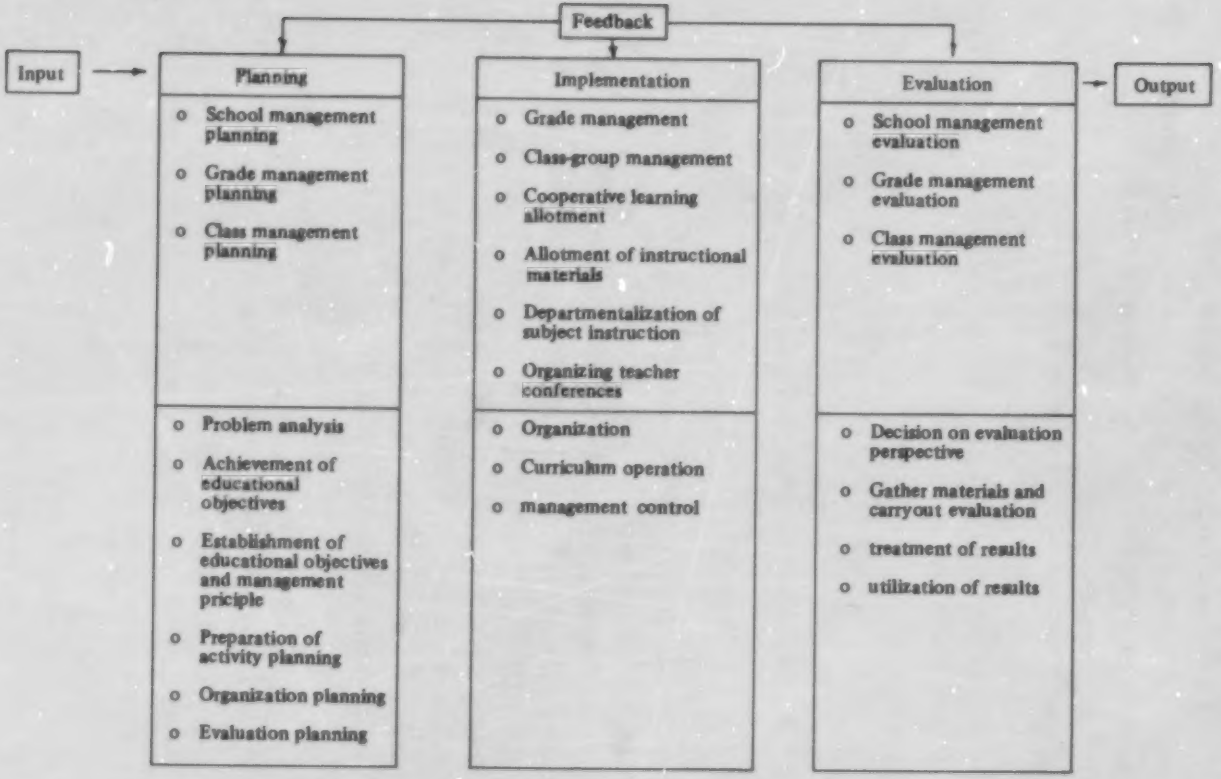
B. General model for the school management system

The school management system model determines what kind of management process should be taken for the accomplishment of educational objectives. School management is completed through the circular flow of three stages: planning, implementation and evaluation. If the subordinate factors which constitute the school management system are conceptualized in the flow of three stages, they may be shown as in (Figure II-8).

The Planning stage is the stage in which certain objectives are established on the basis of analyzed school conditions and projects for the future and in which preparations should be made for reasonable actions necessary for the accomplishment of these objectives. This stage includes the following: 1) problem analysis, 2) establishment of objectives and policies, 3) activity planning, 4) organizational planning; and 5) evaluation planning.

The Implementation stage encompasses the whole process from the moment when the planned activities are undertaken to the completion of those activities. In this stage, supporting and routine activities are carried out on the basis of the democratization of human organization and the rationalization of organizational administration.

Figure II-8 General Model of School Management System



The Evaluation stage corresponds to the final step in the flow of planning, implementation and evaluation. In the Evaluation stage, teachers comprehensively evaluate the degree of achievement in relation to the management objectives of all activities which have passed through the implementation process within a set period of time in accordance with pre-drafted evaluation planning. Here, the scope and the viewpoint of evaluation are first established, and then evaluation is carried out when necessary materials are collected. Evaluation results can be utilized in the improvement of school management as they are provided as feedbacks into the school management process.

C. Sub-systems of the school management system

The sub-systems or sub-factors which constitute the school management system include: from the organizational standpoint, grade management, class-group management and assignment of mutually cooperative learning groups; and from the curriculum operation standpoint, assigned studies on instructional materials, instructions by departmentalization of subjects for Fine Arts, and Physical Education and teacher conferences to help in their smooth operations. If the sub-factors of school management are displayed as a support system in a diagram in connection with the general instructional system model, it will appear as shown in (Figure II-9).

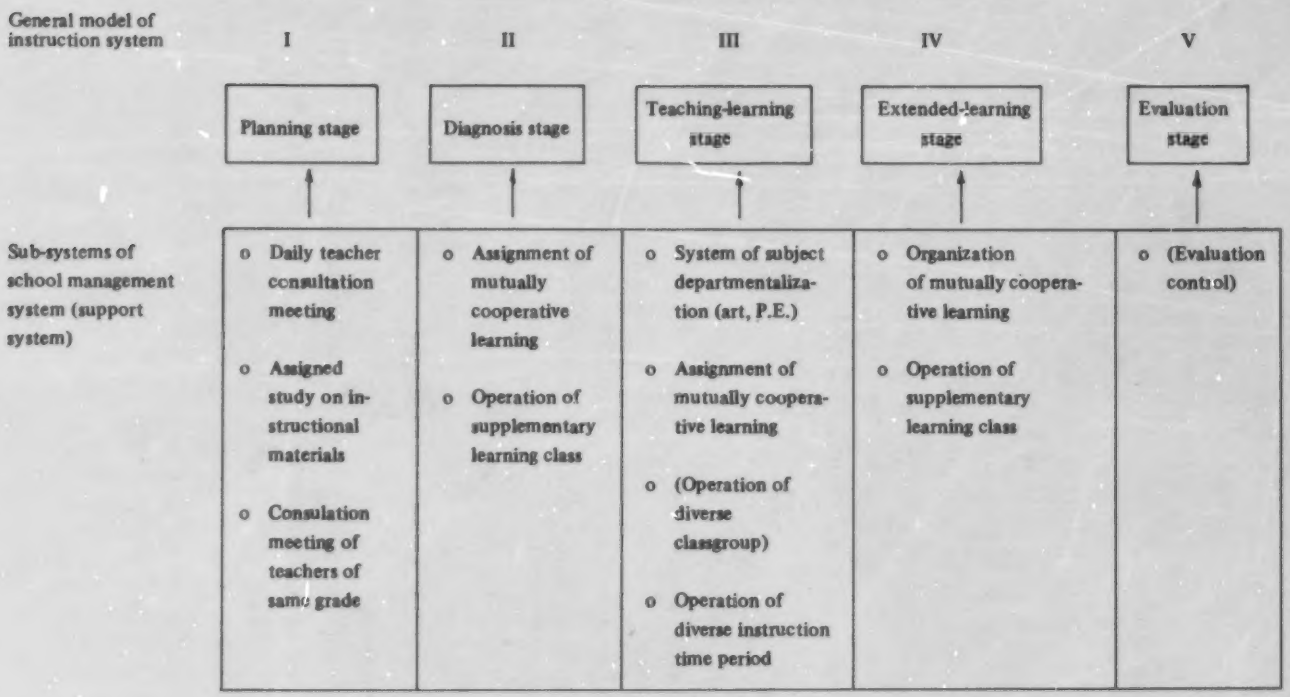
1) Grade management

Grade management replaces the old school management based on class units and intends to bring grade level unit-oriented school management so that specialized cooperation system of teachers will be guaranteed.

2) Class-group management

The class-group is an organization scheme established for the purpose of pulling down the barriers between classes of the same grade

Figure II-9 Subordinate Elementes of School Management System as a Support System


General model of instruction system
I
II
III
IV
V
Planning stage
Diagnosis stage
Teaching-learning stage
Extended-learning stage
Evaluation stage
Sub-systems of school management system (support system)
o Daily teacher consultation meeting
o Assigned study on instructional materials
o Consulation meeting of teachers of same grade
o Assignment of mutually cooperative learning
o Operation of supplementary learning class
o System of subject departmentalization (art, P.E.)
o Assignment of mutually cooperative learning
o (Operation of diverse classgroup)
o Operation of diverse instruction time period
o Organization of mutually cooperative learning
o Operation of supplementary learning class
o (Evaluation control)

level and in which teachers can guide students to cooperate with each other on the basis of 2-4 classes as basic unit. This organizational scheme is a strengthened version of horizontal cooperation system among teachers.

3) Assignment of mutually cooperating learning sections

This is a sectional organization within a class in which students are able to learn through cooperation. It is a support system in which opportunities for group thinking increase through cooperative learning and independent and voluntary learning actvities become possible. Also, this sytem provides opportunities for remedial learning for slower learners. Through proper utilization of this cooperating learning sections, teachers can pursue efficient school management.

4) Assigned study on teaching materials

This system enables teachers to prepare instructions by assigning them to specific areas of the teaching materials and to study them according to their temperament and aptitude. It promotes teacher's specialization through the alleviation of burdens and the offer of opportunities for study on subject areas under his/her charge.

5) System of instruction by subject departmentalization

In this system, a teacher takes exclusive charge of one of the Fine Arts and P.E. subjects so that they can teach all the classes within the same class-group regardless of the class of which he/she is in charge. Through the application of this system, teachers can equalize the quality of instruction among classes in these subject areas in which the instructional deficiency is often acute. Also, they can enrich and develop the contents of subjects and improve their own instructional skills. This serves also as an effective management system in which the class hour allotment standard can be faithfully observed.

6) Teacher conferences

The teacher conference is a cooperation system in which the

smooth application of the above mentioned sub-factors of school management becomes possible by regularly presenting the opportunities for mutual exchange of information and group thinking among teachers.

CHAPTER III. THE DEVELOPMENT OF THE SYSTEM AND THE APPLICATION PROCESS

1. Development and Application of the Educational System

The development process of the instructional system and school management system was accomplished in general through the following four stages: 1) systems anslysis; 2) systems planning; 3) demonstrative implementation of the system; and 4) estimation of the effectiveness of the system. This is the procedure often used in the systems approach.

In the process of the systems analysis, the problems of Korean education were broadly diagnosed and analyzed. In systems planning, a tentative plan of the instructional system and school management system was proposed after referring to various research results from both domestic and foreign sources. In the process of the demonstrative implementation of the system, small-scale tryout studies were carried out four times, and at the systems evaluation stage, a series of five comprehensive demonstrations were carried out to determine the effectiveness of the new system.

A. Model development for the instructional system and the school management system

Research on the development of the new educational system started from wide-scope and broad diagnoses and analyses of the reality and problems with which the Korean education in the field was confronted. The reality of; education in Korea has been diagnosed, through the synthesis of; the numerous problems frequently pointed out; the problems identified in the process of the establishment of a long-term comprehensive educational plan; subsequent measures; and educational

problems identified by KEDI's own research.[1)]

As the result of this diagnosis, it was concluded that the development of a new educational system was inevitable, and consequently, the design of that educational system and its model, became possible.[2)] In the planning of the new educational system, recent educational theories were extensively analyzed and consulted. Most of all, through the use of most recent educational thoughts, educational curriculum theories, teaching-learning theories, educational evaluation theories and thorough conversation and discussion with both domestic and foreign experts, an educational system model befitting the educational reality of Korea was developed. Through these research processes, a tentative plan for a general model of the instructional system, prototypes of teaching-learning materials and a tentative proposal for the school management system were developed. Along with the development of the basic system, some secondary systems were also developed, the contents of which are as follows.

Deserving of first attention is the development of instructional models by subject areas. The characteristics of each subject area are not sufficiently considered in the general model of instructional system, which suggests general procedures for instructions in all subjects. Therefore, it was necessary to develop an instructional system model suitable to the characteristics of each subject area. This will be discussed further in the discussion of the process of material development later.

Next is the development of the instructional system for the teaching-learning process of first grade students in their early days of school entrance. Special guidance programs are necessary from orientation in the early days of school entrance to the beginning period of learning in each subject. KEDI undertook studies on this process, developed subordinate instructional systems in the form of guidance

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1) Refer to Chapter 1 for the results of the diagnosis.

2) Refer to Chapter 2 for an overiew of the new system.

programs for newly enrolled students, and confirmed the system through field demonstrations.

Finally, the efforts to develop an instructional system model for applications to middle schools are worth mentioning here. Since the target of the above mentioned models for the instructional and school management systems was primarily the elementary school level, various problems would have occured if these were applied to the middle schools as it was. Thus, though KEDI was concerned about the development of an educational system for application to middle schools, this need was satisfied only to the point of preparing a tentative proposal for the instructional system and the implementation of a small-scale tryout.

B. Small-scale tryouts

At the stage of the "demonstrative implementation of the system", which was the third stage of the system development process, small scale-tryouts, with the primary school level as the target, were carried out on four occasions. The purpose of these small-scale tryouts was to analyze the effectiveness of a small scale application of the general instructional system model, of the instructional models by subject areas, of several kinds of instructional materials and of the school management system to the field. It also aimed to reflect the results of such tryouts on succeeding tryouts to continue to revise and supplement sub-systems. The evaluation of the small-scale tryout included both the evaluation of individual sub-systems and the evaluation of the combined effects of their interactions.

The small-scale tryouts selected two or three sample schools and were carried out for a comparatively short period lasting one to two months and having, as its range of study, two or three subject areas for one or two grade levels, or the entire subject areas for one grade level (Table III-1).

The contents and achievements of the first through fourth small

Figure III-1 First grade subjects of elementary school level at four small-scale tryouts

		First tryout	Second tryout	Third tryout	Fourth tryout	First grade in elementary school
Tryout period		('73) 5.28-6.23 (about 4 weeks)	('73) 11.5-12.1 (about 4 weeks)	('74) 10.6-11.30 (about 8 weeks)	('75) 5.6-6.27 (about 8 weeks)	('78) 3.5-4.8 (about 5 weeks)
Target grade level and subject		o Third, fifth grades arithmetic and science	o Second grade Moral Education, Korean Languase and arithmetic	o All subjects of third grade (8 subjects)	o All subjects of 5th grade (9 subjects)	o Five subjects of 1st grade o Orientation program for freshmen, Korean Language, Moral Education, social studies, and arithmetic
Number of schools and number of students	Tryout group	o Two in Seoul area 765 pupils	o Three in Seoul and Incheon 906 pupils	o Two in Seoul area 851 pupils	o Two in Seoul and Anyang 100 pupils	o Three in city, myeon and ri Area outside Seoul 524 pupils
	Comparison group	None	o Three in Seoul and Kyung Kee area (same schools as tryout group) 576 pupils	o Two in Seoul area 690 pupils	None	None

scale-tryouts are as follows.

In the first tryout, studies concerning a general model for the instructional system and the validity of teaching-learning materials and their effectiveness were carried out. As a result, the effectiveness of the general model for the new instructional system was confirmed and the prototypes of teaching-learning materials were developed. The input subject areas were arithmetic and science for third and fifth grades.

The second tryout aimed to collect information necessary to determine the applicability of the general model of the instructional system and for the improvement of teaching-learning materials for the lower grades(i.e., second grade). As an outcome of the tryout, the applicability of the general model for the instructional system for the second grade level was ascertained and revision measures for the teaching-learning materials were recommended.

The third tryout was executed with third grade students. The purpose of this tryout was to inquire into the applicability of the instructional system models for eight subject areas, to discover problems which would arise when these models were applied to all subjects simultaneously, to determine the appropriate quantity of instructional materials and to verify the possibility of adopting the use of assistant teachers as a part of the management system. As the result of the third small-scale tryout, the applicability of the instructional system model for each subject area and the appropriate quantity of instructional materials were confirmed. But, it was anslyzed that adoption of using assistant teachers would have many problems.

The fourth small-scale tryout was implemented with the fifth grade level and all subject areas (9 subjects) as the target. The purpose of the tryout was to examine the applicability and effectiveness of the instructional system model of each subject area as well as the applicability and effectiveness of the school management system. It was also to study the possibility of integrating the instructional system with the school management system. As an outcome of the tryout, the appropriateness of the subject instructional system model was re-confirmed. The pos-

sibility of introduction and the effectiveness of the school management system was also confirmed. Furthermore, the overall model of the new instructional system, which was to be put in the comprehensive demonstration, was adopted.

In a tryout using first grade students, which was carried out separately, four kinds of teaching-learning materials were used. They included programs for the efficient adaptation of students to school environment during their first two weeks, to have them learn the basic skills in reading, writing and counting before the actual beginning of subject instruction. They also included an early reading program, which has the characteristics of a language education program, and an early number concept program.

The significant revisions adopted, through first and fourth small-scale tryouts, on teaching-learning materials are explained as follows.

In the third small-scale tryout, assistant teachers were utilized in programmed learning and instructional TV hours, but this resulted in so many problems that the concept of assistant teachers was finally excluded from the school management system.

Also, it was found that the utilization of any of the programmed learning materials was entirely inappropriate to the lower grade students and slower learners. As a result, the programmed learning materials were much reduced and used only as supplementary and enrichment materials for some subject areas in the fourth tryout.

C. Comprehensive demonstrations

The comprehensive demonstration was conducted to comprehensively apply the sub-factors of the new educational system which were confirmed by the small-scale tryouts. It also aimed to assess the efficiency of the new educational system.

The comprehensive demonstration was executed five times over a period of four years and six months. The reason for such a long period required was that it could not be finished within a year or two,

because the scope of development of the teaching-learning materials on all subjects of all grade levels of primary school was tremendous. It was also because a four to five year period of testing over a large-scale group was necessary to evaluate the degree of achievement of the pay-off goals[3] which had been designated as the standard for assessing the efficiency of the system.

In the verification of the effects of the new educational system, intrinsic goals[4] as well as pay-off goals, were utilized as the standard for evaluating the efficiency of the system. Another purpose of the comprehensive demonstrations was to discover problems which could arise from the application of the new system in the field and to collect materials concerning aspects that needed supplementation.

The targets of the comprehensive demonstrations were, in the case of the first demonstration, third and fifth grades of 14 schools, numbering 163 classes and totaling 11,198 students. The second comprehensive demonstration included third, fourth and fifth grades of 16 schools numbering 264 classes and totaling 17,721 students.

As the target grades expanded, the participants of the third comprehensive demonstration were third, fourth, fifth and sixth grades of 16 schools numbering 382 classes and totalling 25,059 students. In the case of the fourth demonstration, second, third, fourth, fifth and sixth grades of 18 schools, numbering 595 classes and totalling 37,193 students, participated, and in that of the fifth demonstration, first, second, third, fourth, fifth and sixth grades of 18 schools, numbering 726 classes and totalling 46,226 students, were participating (Figure III-2). In addition to the above referred demonstration schools, which were selected for the verification of the effects of the new educational system and the collection of research data, five to nine ordinary schools which did not adopt the new educational system were sampled at random and surveyed for collection of materials at every demonstration study.

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3) and 4) please refer to chapter II

The achievements of the comprehensive demonstration research can be arranged as follows[5].

First, the new educational system was proven to be an appropriate system for the current reality of Korean education. The new educational system was not a project which ended with the mere introduction of some new techniques in instruction. Rather, the new system increases student learning achievement through systematic approaches to improve the mental attitude and quality of teachers, the principles of teaching-learning process, and class and school management. It also reduced the heavy workload of teachers through the utilization of new teaching-learning materials while enhancing the student's independent inquiry learning.

In so much as through the five comprehensive demonstrations, the number of schools, which voluntarily utilized the new educational system and which requested and used portions of the teaching-learning materials were recorded to be more than a third of all schools across the country, providing a sufficient proof for the appropriateness of the new educational system.

Second, the new educational system was confirmed as an effective system in improving the quality of education. It was revealed that the application of the new educational system would bring the following effects: an improvement in academic achievement and in teaching-learning methods, diversification of learning materials, rationalization of school management, and improvements in the quality of school curricula operation and of teachers.

2. Development of Teaching-Learning Materials

As explained in Chapter II, teaching-learning materials have an important function, namely, to suggest specific teaching-learning activities in the new educational system. It is first through teaching-

5) The detailed discussion of the outcomes will be made in chapters VI and V.

learning materials that the intrinsic goals of the new educational system can be actually reflected in the instructional system, and the design for the operation of classrooms on the basis of the general model for the instructional system can not be realized without the support from the appropriate teaching-learning materials.

The discussion on the types and characteristics of teaching-learning materials for the new educational system are omitted here since they have been explained already, and the items considered in the process of their development will be clarified below.

A. Development of the subject instructional model

It is the subject instructional model which suggests the practical direction of instructional methods or instructional strategies to be included in each teaching-learning material. The subject instructional model is based on the relevant subject instruction theories of each different subject areas.

The subject instructional system model, which for convenience is also called the sub-instructional system model, reflects matters necessary to accomplish the educational objectives of each subject area while accepting to the maximum the principles and spirit which KEDI's general instructional system model suggests. In most subject areas, the instructional activities which corresponds to the teaching-learning stage of the general instructional system model and which have been systematized by making use of the characteristics of each subject are being utilized as the individual subject's instructional model. But depending on the subject area, the diagnosis stage is sometimes omitted or, the extended learning stage is sometimes reduced. The subject instructional model was designed so that the spirit of current educational curricula could be contained in the classroom instruction. In the subject instructional model, learning-oriented educational curricula and the principle of inquiry learning are emphasized. The subject instruction theory, which is based upon the current educational curri-

Figure III-2 Subjects of Five Comprehensive Demonstrations

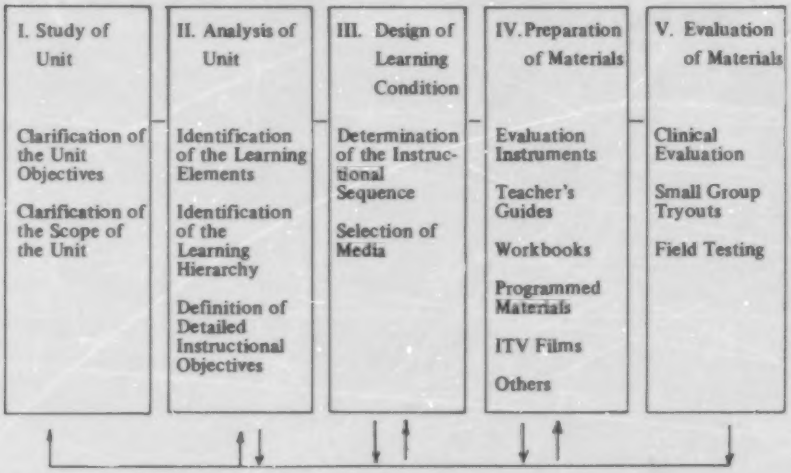
	First comprehensive demonstration in 1975	Second comprehensive demonstration in 1975	Third comprehensive demonstration in 1977	Fourth comprehensive demonstration in 1978	Fifth comprehensive demonstration in 1979	1980
Grade	3,5	3,4,5	3,4,5,6	2,3,4,5,6	1,2,3,4,5,6	1,2,3,4,5,6
Number of schools	14	16	16	18	18	18
Number of classes	163	264	382	595	726	751
Number of students	11,198	17,721	25,059	37,193	46,226	45,135

cula, may be said to have been established as the result of the development of this subject instructional model.

B. Development model of teaching-learning materials

If the subject instructional model is aimed to suggest the basic direction of the designing of concrete instructional methods, the teaching-learning material development model could be said to suggest the procedure of operations which should be taken during the process of the development of specific materials. Also, if the former were based mainly upon subject instruction theories, the latter might be said to be principally based upon curriculum theories and teaching-learning theories. KEDI's teaching-learning materials development model is shown in (Figure III-3).

Figure III-3 KEDI Model of Instructional Materials Development



According to this model, the first stage of the material development is the "Study of Unit" wherein the terminal objectives of an instructional unit are clarified and the unit content is defined in terms of its

relations with other units. In the second stage, "Analysis of Unit," the learning task is analyzed into the learning elements such as facts, basic concepts, and principles. The interrelationships of these learning elements are examined to identify the learning hierarchy.[6] On the basis of this analysis, the detailed instructional objectives for the unit are defined in behavioral term as suggested by Mager.[7]

In the stage called "Design of Learning Condition," the instructional sequence is determined by the learning hierarchy of the unit. First, the instructional objectives to be covered during each lesson hour are determined in accordance with the KEDI instructional model, and then the most appropriate media for the instruction are selected-teacher lecture, textbook, programmed materials, workbooks, and/or ITV programs.

"Preparation of Materials" is the fourth stage of the material development. In this stage, the actual preparation of the instruments for the diagnostic, formative, and summative evaluation takes place. Also, the teacher's guides and other materials such as workbooks, programmed materials, and ITV films are prepared.

The last stage of materials development is "Evaluation of Materials". The materials prepared in the fourth stage are tested with target students to verify their adequacy and effectiveness. After the materials are prepared, they are first reviewed by the subject specialists, then the clinical evaluation and small group tryouts are performed. When possible, the field testing of the materials is conducted in actual classroom situations.

As Figure 7 shows, the five stages in the development process are not independent of one another and not sequenced strictly. Whenever some modifications of the materials seem necessary, the process is repeated.

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6) R.M. Gagne, *The Conditions of Learning* (New YOrk: Holt, Reinhart, & Winston, 1965).
7) R.F. Mager, *Preparing Instructional Objectives* (Palo Alto: Fearon Publishers, 1962).

C. Development process of teaching-learning materials

In the development process of teaching-learning materials, not only KEDI's curriculum researchers but many scholars (specialists in educational curriculum, teachingl-learning theories and educational evaluation), subject area specialists, field teachers and media experts (in TV and radio programs) participated extensively.

All the considerations about restrictions, quantity, methods of statement and the size of lettering, as well as expediency in the utilization of materials, were carefully analyzed and sufficiently reflected during the four small-scale tryout processes.

Also, all the materials that had been developed passed through the process of revision and supplementation through field training subsequent to the implementation of comprehensive demonstrations and formal or informal monitoring materials of demonstration and cooperating schools.

PART 2. THE IMPACT OF THE NEW EDUCATIONAL SYSTEM IN THE FIELD

CHAPTER IV. IMPACT ON SCHOOL EDUCATION

This chapter deals with the impact of the new educational system on school education. In as much as the new educational system was studied and developed to bring about innovations in school education, the changed aspects of school education much corresponds to the development objectives of the new system. The impact on the students' intellectual and affective learning achievement is investigated and the impact on school management, teacher quality and the teaching-learning process is also discussed in this chapter. The analysis of the variation in the degree of intellectual learning achievement of students is described by putting together KEDI's base-line data and the first through fifth comprehensive demonstration research reports. The remaining aspects of the outcome, including the changes in affective characteristics, are described by analyzing the research reports on demonstration and cooperating schools across the country and of the "New Educational System Evaluation Committee" of the Ministry of Education.

1. The Improvement in the Level of Learning Achievement

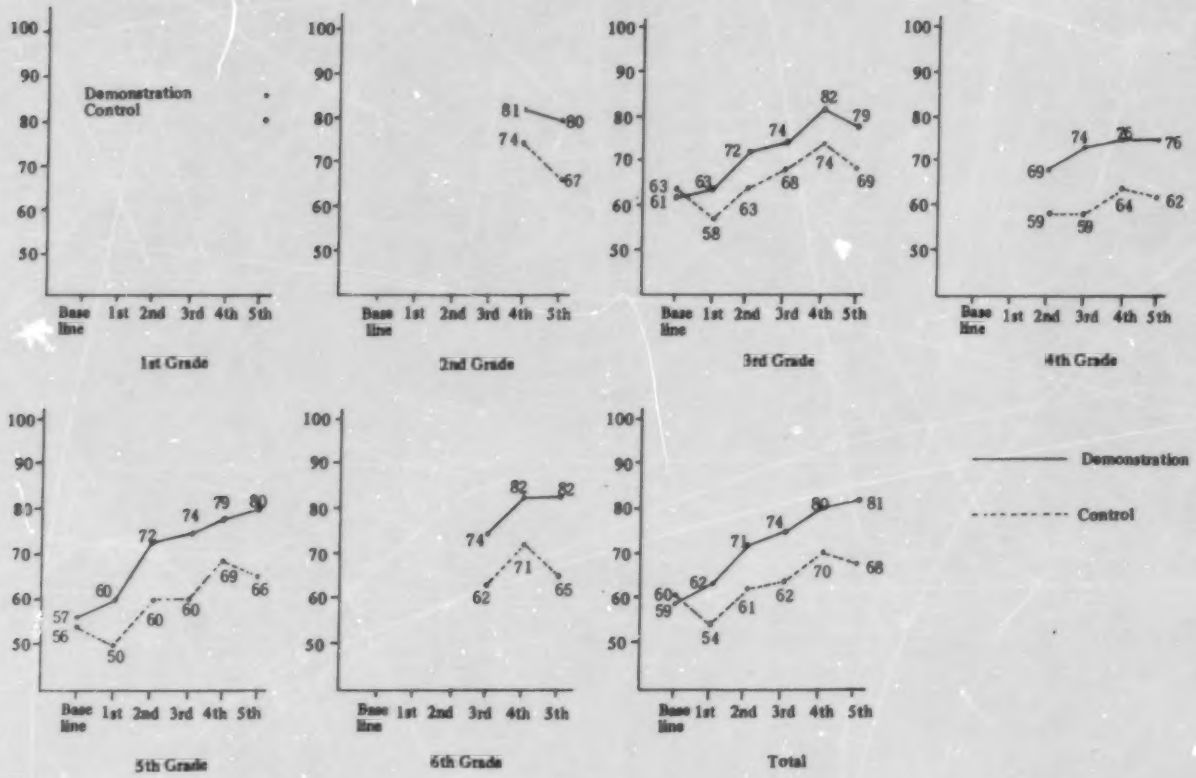
A. Overall trend

For the evaluation of application effects of the new educational system, the academic achievements of students were measured at every demonstration from the first small-scale tryout in 1973 to the fifth comprehensive demonstration in 1979.

The overall trend in the results of the academic achievement tests in the first through the fifth comprehensive demonstration is as follows (Figure IV-1).

As shown in (Figure IV-1), the results of the preliminary academic achievement test before the implementation of the first comprehensive

Figure IV-1 Achievement Test results of Demonstration and Control Groups by Demonstration Year



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demonstration showed the control group recording an average of 63 points which was higher than the 61 points of the demonstration group by 2 points. But among fifth grade students alone, the average score of the demonstration group was 57, which was higher by 1 point than the average 56 points of the control group. In the average score of third and fifth grade students together, the demonstration group and the control group recorded 59 and 60 respectively so that both groups were found to be homogeneous.

The results of the academic achievement test after the end of the first comprehensive demonstration revealed that the demonstation group recorded 62 points (63 points in third grade, 60 points in fifth grade) which was higher by 8 points than the record of the control group, which was 54 points (58 points in the third grade, 50 points in the fifth grade).

These differences in marks by the demonstration group consistently appear in all demonstration studies after the second comprehensive demonstration.

In the second comprehensive demonstration, the difference in the third grade level was 11 points (74 points in the demonstration group, 63 points in the control group, while that of the fifth grade was 10 points (69 vs. 59 points), and that of the fifth grade was 12 points (72 vs. 60 points). Consequently, the difference in score of the above three grades was an average of 10 points (71 vs. 61 points).

In the case of the third comprehensive demonstration, the difference in the third grade level recorded was 6 points (7 vs. 68 points), in the fourth grade, 17 points (74 vs. 57 points), in the fifth grade, 14 points (74 vs. 60 points)and in the sixth grade, 12 points (74 vs. 62 points). Therefore, the difference was an average of 12 points (74 vs. 62 points, in the above four grades and showed some what even differences of scores.

And in the case of the fourth comprehensive demonstration, the second grade recorded a 7 point difference (81 vs. 74 points), the third grade, 8 points (82 vs. 74 points), the fourth grade, 12 points (76 vs.

64 points), the fifth grade, 10 points (79 vs. 69 points) and the sixth grade, 11 points (82 vs. 71 points). Therefore the average difference of the fifth grades was higher by 10 points in the demonstration group than the control group.

In (Figure IV-1), the graph shows a slow rising trend also in the control group as the demonstration continues, though the degree of the rising trend is not as steep as that of the demonstration group. This is considered to be due to the new educational system exerting its influence also on the control group, owing to the consciousness of subjects being experimented upon, as well as to the diffusive effect of the new educational system and to the transfer of teachers. Thus, in the fifth comprehensive demonstration, those schools on which the new educational system exerted its influence the least were selected as the control group.

The results of fifth comprehensive demonstration showed that the score of the demonstration group was 86 points and that of control group was 80 points in the first grade. Thus, the difference in score was but 6 points. Considering that, in the case of the second and third grades, the difference between the two groups was also small in the third and fourth comprehensive demonstrations, the reason for the results of the fifth comprehensive demonstration can be interpreted as follows: in the case of the lower grades, the phenomenon of the accumulation of learning deficiency is less than that of the higher grades and the lower grades showed less effect than the other higher grades since it was the first time that the former attended classes based on the new educational system.

But from the second grade, the same trend as before can be seen. That is, in comparison with the control group, the demonstration group showed higher scores as shown in the following: the difference in scores of the second grade was 13 points (80 vs. 67 points), the third grade, 10 points (79 vs. 69 points), the fourth grade, 14 points (76 vs. 62 points) the fifth grade, 14 points (80 vs. 66 points); and the sixth grade 17 points (82 vs. 65 points). The average score of the above six

grades was high; 81 points in the case of the demonstration group and 68 points in that of the control group.

Summarizing the above results, the following conclusions can be drawn.

First the new educational system contributes much to the improvement of the degree of student achievement: this is confirmed throughout the entire process of the demonstrations.

Second, the application effects of the new educational system were shown to be greater in the higher grades than in the lower grades which has fewer accumulated learning deficiences. This indicates that the effects of the new educational system were greater in those grades in which its application period was longer. It is because, in the case of the first and second grades, the application period of the new educational system was short, since it wasn't applied to these grades until after the fourth demonstration during the process of the comprehensive demonstration study.

B. Increase in the number of children attaining the mastery of learning tasks.

If those students who obtained scores between 80 and 100 points are regarded as the children obtaining the mastery of the course, the percentage of these children among all students by demonstration and by group is as shown in (Figure IV–2).

After the end of the first demonstration, those obtaining the mastery of the course within the demonstration group totaled 27% and those with the mastery of course within the control group came to 16% so that the percentage of students completing the course in the case of the demonstration group was higher than that of the control group by 11%. In the case of the second demonstration, the percentage of students with the mastery of the course within the demonstration group was 42%, which almost doubles the 23% of the control group. Also in the third comprehensive demonstration, the percentage of students obtain-

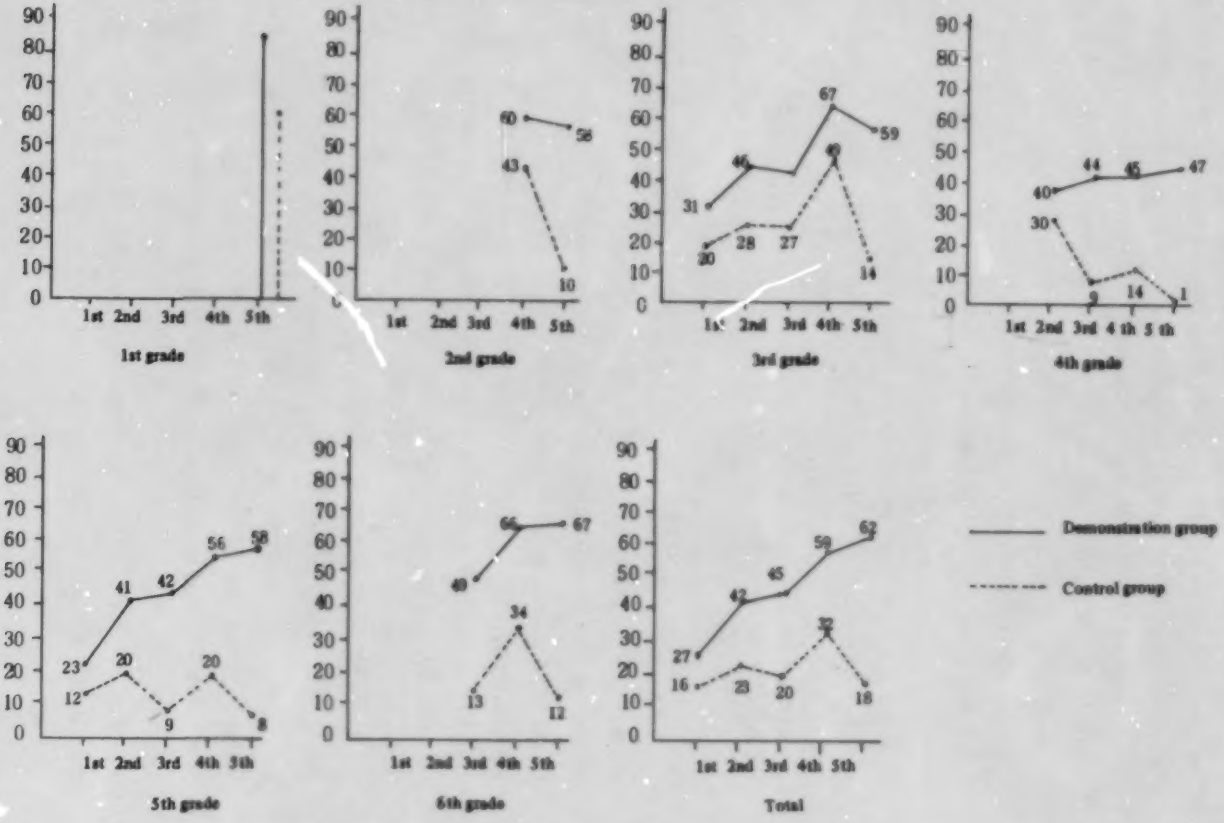
ing the mastery of the course within the demonstration group was 45%, which again more than doubles the 20% of the control group. In the fourth comprehensive demonstration, 59% of the students in the demonstration group arrived at the level of learning mastery, but in the control group, only 32% of the students reached the level of learning mastery. Again, the percentage of learning mastery within the demonstration group almost doubled that of the control group. When the fifth comprehensive demonstration had ended, 62% of all the students in the demonstration group reached the level of learning mastery while in the case of the control group, only 18% arrived at the level of learning mastery. Here the precentage of students reaching mastery level from within the demonstration group tripled that of the control group (In Figure IV–2), the percentage of students obtaining the mastery of learning shows a continuous rise for the demonstration group as the demonstration proceeds.

In comparison with this, the percentage of the control group ascended a little during the second and fourth comprehensive demonstrations, it showed the same level as it was during the first comprehensive demonstration. Thus, it can be seen that the average percentage of the five demonstrations is around 22%. This means that the application of the new educational system has contributed much to the improvement in the average scores and to the increase in the number of students obtaining the mastery level of learning course.

C. The extension of higher learning thought processes

One of the important characteristics of the new educational system is that it offers students more learning experiences requiring higher thought process. This particular characteristic was especially emphasized during the processes of teaching-learning material development and teacher training. Research methods, which have been utilized during this period to examine how the input of the new educational system has improved the student's ability for higher thought processes, can be

Figure IV-2 Ratio of Instructional Mastery by Students in Demonstration & Control Groups by Demonstration Year



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summarized into the following three methods. The first is to classify the question items of the academic achievement test, which was carried out to measure the results of demonstration research, into the (information) level and higher thought process according to the taxonomy of educational objectives, and next, to compare the percentage of right answers among group in each behavioral domain. The second is to compare the percentage of right answers among groups by having them solve the questions for the higher grades through the use of the basic learning function test which was produced to be used by all the grades. The third is to compare the academic records of the graduates from demonstration schools and of those from ordinary schools after they advanced to the middle school level.

1) precentage of right answers in the academic achievement test according to behavioral domain.

After the question items on the academic achievement test were classified into knowledge level and higher thought process items, the results of the comparison of records between the demonstration and the control group are shown in (Table IV–1). Such an analysis was also carried out in studies after the second comprehensive demonstration. But since the results were not much different between demonstrations, the case of the third comprehensive test will be adopted as an example for examination. (Table IV–1) illustrates the following several facts.

First, it is seen that in any particular behavioral domain of any of the subject areas and in whatever grade, the students in the demonstration group surpassed those in the control group not only in the knowledge level but also in the higher thought process area.

Second, focusing our attention on the comprehension, inquiry skills, and attitude domain from which one can infer the extension of the higher thought process, some significant differences among groups can be found within fifth and sixth grades in both grade and subject levels. Six different subjects-Korean Language, Social Studies, Science, Music, Fine Arts and Practical Arts were utilized. The marks on the higher thought process question items were higher in the fifth

Table IV-1 Difference & Significance of Right Response Ratios in Achievement Test by Behavior Domain After Third Comprehensive Demonstration

Subject	Behavior Domain	3rd Grade				4th Grade				5th Grade				6th Grade			
		Number of Item	Correct Response ratio (%)			Number of Item	Correct Response ratio (%)			Number of Item	Correct Response ratio (%)			Number of Item	Correct Reponser ratio (%)		
			Demonstration N=191	Control N=172	t		Demonstration N=186	Control N=211	t		Demonstration N=186	Control N=217	t		Demonstration N=194	Control N=223	t
Moral education	Comprehension	7	86	80	1.61	8	82	79	1.60	10	74	69	1.05	13	94	86	1.7**
	Attitudes	8	90	89	2.19*	7	90	85	1.62	5	91	89	1.63	2	88	80	2.26*
Korean language	Knowledge	13	75	63	2.53*	9	81	72	2.01*	5	59	46	2.52**	9	84	64	5.44**
	Comprehension	12	77	70	1.40	21	81	71	2.33*	25	74	64	2.23*	21	79	61	4.18**
Social studies	Knowledge	10	82	73	1.86	12	66	57	2.12*	16	71	64	1.36	8	73	62	2.30**
	Inquiry skills	15	71	64	1.36	18	64	52	2.33*	14	69	56	2.76	22	75	60	3.50**
Arithmatic	Knowledge skills	14	80	72	1.90	11	63	53	1.91	18	64	48	3.22**	10	75	64	2.45*
	Comprehension	6	73	66	1.47	14	57	48	1.79	7	54	45	1.92	15	71	56	3.06**
Science	Knowledge	12	79	69	2.00*	14	75	60	2.24*	13	77	71	1.52	8	71	70	0.25
	Inquiry skills	13	74	69	1.01	16	71	62	1.84	17	80	67	2.95**	22	76	59	3.97**
Music	Knowledge	8	67	55	2.55*	7	63	55	1.52	6	67	55	2.39*	9	78	64	3.17**
	Expression Attitudes	7	69	62	1.54	8	58	46	2.36*	9	59	48	2.3[illegible]	6	52	49	2.83**
Fine Arts	Knowledge	6	63	58	1.20*	7	53	38	3.03**	7	68	53	3.09**	8	68	50	3.64**
	Expression Attitudes	9	71	58	2.63**	8	79	64	3.46**	8	77	68	2.17*	7	75	51	3.33**
Practical Arts	Knowedge Comprehension Application					9	63	59	1.16	12	76	61	3.39**	6	78	66	2.70**
							77	72	1.12	3	89	80	2.63**	9	69	57	2.43*

Significance level: * = P<.05 ** = P<.001

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and sixth grades, to which the new educational system was applied for over two years, than the third grade, to which it had been applied for one year. This indicates that the degree of extension of higher thought process learning was high in the case of those students who had been under the new educational system for a longer period.

2) Transfer effect of the basic study skills

The basic study skills were regarded to be the basic learning ability in the fields of language, arithmetic principles and material utilization, which is indispensably required and common to the learning of any subject area. In order to estimate these ability factors, the basic study skills test was developed and utilized. This test consisted of a total of 263 question items and takes the form of a duplicate level test which is identically carried out among two or three consecutive grades. Taking advantage of this test, the fourth and fifth grade students of the demonstration and control schools solved the questions for the fourth, fifth and sixth grades and the results of the test were compared in the two groups. This analysis was also done both in the fourth and fifth comprehensive demonstrations.

According to (Table IV–2), it can be seen that in the case of fourth grade students, the demonstration group recorded 75 points, which was higher than the 64 points of the control group by 11 points on the section of questions for the fourth grade level.

And when they were prompted to solve questions for the fifth and sixth grades, the result was that the demonstration group (68 points) showed higher scores than the control group (57 points) by 11 points.

In the case of the fifth grade students, when confronted with questions of fourth and fifth grade levels, the demonstration group recorded 76 points and the control group recorded 67 points. The marks of the former was higher by 9 points than the latter. Also, when they were prompted to solve questions for the sixth grade, the result was that the demonstration group (75 points) was 10 points higher than the control group (65 points).

The above results indicate that the application of the new educational system improves the ability to solve study questions at higher-grade levels by cultivating the student's basic learning skills.

3) Transfer effect on the middle school records

In order to analyze the long-term influences which the application of the new educational system had on the students' learning ability, the learning achievement of those students to whom the new educational system was applied for a fixed period after their advancement to middle school was followed-up and studied.

The target of this follow-up study was first year students in 30 middle schools to which graduates from demonstration schools advanced, after having studied under the new educational system for four years since the fourth comprehensive demonstration had ended.

(Table IV-3) compares, among the first year students in the 30 middle schools, the degree of learning achievement of a student group from the demonstration schools and that of a student group from ordinary schools.

According to the results of this comparison, it can be seen that the records of those middle school students who graduated from demonstration schools were higher than that of those who graduated from ordinary schools. This result can be interpreted as follows: those students who were educated under the new educational system were much improved in their higher thought process learning and this transfer effect was reflected in their middle school records.

Table IV-3 Achievement Level of Junior High School Students from Demonstration Schools After Fourth Comprehensive Demonstration

	M	SD	Number of students	Scroe
From demonstration school	69.99	14.91	1,094	53.11
From ordinary school	65.21	15.11	7,013	49.63

D. Reduced differences of academic ability among regions, individuals and classes.

1) Decrease in regional differences

According to the result of the academic achievement test, which was carried out in primary schools across the nation by KEDI in 1974, when the development of the new educational system was undertaken, the average academic score recorded in the city area was 66 points, and in the rural area it was 55 points. Thus, there was a difference of about 11 points between city and rural areas. Also in the results of the learning achievement test, which was carried out among demonstration groups and control groups at the starting point of the first comprehensive demonstration, in September 1975, the city areas were shown to be 11 points higher than rural areas in both the demonstration and control groups.

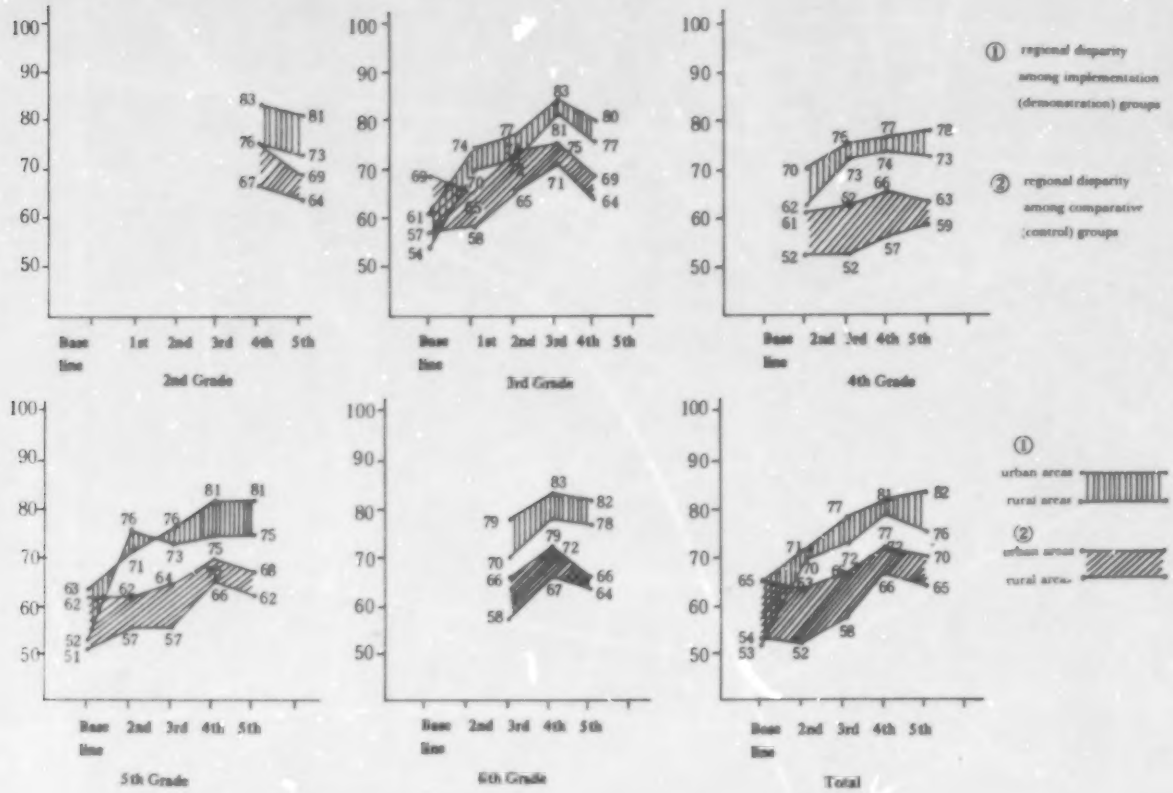
Since such trend was also found in other researches done in the past, it can be seen that there existed more than a 10 point difference in the academic ability of students between city and rural areas of Korea.

One of the pay-off goals of the new educational system was the reducton in the difference in academic achievement level among regions, and it is seen that this goal has been accomplished to a considerable extent.

The base-line data and the results of the academic achievement tests after the second, third, fourth and fifth comprehensive demonstrations are analyzed by regions as shown in (Figure IV-3).

According to (Figure IV-3), at the base-line (the starting point of the first comprehensive demonstration), the city areas averaged 65 points while the average for rural farming areas was 53 points in the case of the demonstration group. So there was a difference of 12 points. Likwise, the control group recorded 65 points in the city areas and 54 points in the rural areas so that there was a difference of 11 points.

Figure IV-3 Comparison of Achievement Test Score by Regional Groups & Demonstration & Control Goup by Year



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But in the case of the demonstration group, by the completion of the second comprehensive demonstration, the rural areas jumped up to a 70 point average which was a great improvement of more than 17 points in comparison with the baseline score of 53 points. There was, however, only a 1 point difference between the baseline score and that at the end of the second comprehensive demonstration for the city areas (71 points). As the third, fourth and fifth demonstrations continued, the scores of the rural areas, in the case of the demonstration group, were continuously showing a rising trend, an average of about 5 to 6 points higher than that of the control group of the city areas.

Although there is a limitation in that the number of sample schools was too small to compare the difference between city and rural areas in the demonstration group with those of the control group, it may be seen that the difference between city and rural areas in the demonstration group was an average of 4 points, which is half of the 8 point difference between city and rural areas within the control group. This indicates that the application of the new educational system contributes to the reduction of regional differences in academic ability.

2) Decrease in individual differences.

The new educational system puts an emphasis on individual learning so that students may be provided with many opportunities for independent learning. Thus, it can be guessed that one of the characteristics of the new educational system is its contribution to the reduction of individual differences in academic ability.

To investigate whether or not the individual diffference has been decreased, the difference in the standard deviation of the results of the academic achievement test, which was executed after the fourth comprehensive demonstration, were compared between demonstration and control groups.

Referring to (Table IV-4), it can be seen that in all grades and subject areas except for the third grade "Science", the individual

difference in the demonstration group was significantly reduced as compared to the one in the control group. It has been already said that after the fourth comprehensive demonstration, the results of the academic achievement test showed that the average score of the demonstration group was 10 points higher than that of the control group. The fact that the standard deviation of the demonstration group is small, though its average score is 10 points higher, indicates that the new educational system contributes to the improvement toward equalization in academic ability among students.

3) Decrease in the difference among classes and subject areas

The teachers in the demonstration schools were asked to express their opinions as to whether the new educational system decreased the difference in their students' academic ability among classes and subjects. Their responses are illustrated in (Table IV-5).

According to (Table IV-5), most teachers (85% in fact) in the demonstration schools expressed that the new educational system is effective in reducing the difference in academic ability among subject areas, both regular academic subjects and Fine Arts and Physical Education Subjects, and among classes. And when this result is connected with the above mentioned effect of improved academic ability, it is apparent that the new educational system is also effective in the increase toward equalization in the level of academic ability among subject areas and class groups.

2. Changes in Affective Characteristics

A. Improved self-directed learning attitude

An important intrinsic goal of the new educational system is in facilitating the self-directed learning attitudes of students. The new educational system utilizes 'the workbooks' to help students in independent learning and the experiment, practice, and inquiry learning

Table IV-5 Reducing Effect on Achievement Difference of the New Educational System

(N = 47)

	Increase frequency(%)		Same frequency(%)		Some decrease frequency(%)		Much decrease frequency(%)	
1) Achievement difference between subjects	3	(6)	3	(6)	18	(38)	23	(49)
2) Achievement difference of main subjects and Fine Arts & Physical Education Subjects	4	(9)	2	(4)	18	(38)	23	(48)
3) Achievement difference between Fine Arts & Physical Education Subjects	2	(4)	4	(9)	12	(26)	29	(62)
4) Achievement difference between classes	1	(2)	3	(6)	15	(31)	28	(60)

methods are emphasized in the curriculum. It also provides the students with various types of opportunities for mutually cooperative learning.

Synthesizing the results of the research up to now, it can be seen that the self-directed learning attitudes of students, who were subjected to the application of the new system, have improved over time.

The results of the questionaire for teachers in the fourth and fifth comprehensive demonstration indicate a large difference in self-directed learning attitudes between the students of demonstration schools and those of control schools. The response by "over half of the students are able to complete practice or exercise questions assigned to them during the class, independently" was 57% among the teachers (subject; 497 persons) of demonstration schools, as compared to merely 35% among the teachers (subjects: 243 persons) of control schools. The response of "over half of the students have the habit of voluntarily studying even if homework assignments are not given" was 48% among the teachers (497 persons) of demonstration schools, whereas merely 23% of control school teachers (244 persons) responded like wise.

Also, in another questionaire targeted for 39 teachers in demonstration schools, the teachers responding, "the number of students voluntarily doing previews and reviews of tasks have increased after the application of the new educational system", was 89% with 34 teachers. In the same study, teachers responding that "students voluntarly asking questions during the class have increased after the application" was again 87% with 34 teachers.

Such reports of the expanded attitudes of students for independent learning were also indicated in some 30 demonstration and cooperating schools' reports[2] as well as in the evaluation reports provided by the Ministry of Education[3] and KEDI.

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2) Portions of the reports on the applications of the new educational system published between 1976 and 1980 were used for analysis.

3) The *Evaluation Report on the Results of the Application of the New Educational System to Elementary School*, the New Educational System Evaluation Committee, 1978.

Here, only the contents of the evaluation report by the Ministry of Education will be discussed.

The Evaluation Committee, which analysed opinion papers on the new educational system by city/province boards of education, reports that after the application of the new educational system, student's independent learning attitude, learning participation consciousness through student activity-contered learning were cultivated, and student's preview of tasks and survey and collecting activities were vitalized.

B. Upgrading student's expressive ability

One of the development objectives of the new educational system is to present students with much learning experiences foused on higher thought processes such as problem-solving ability, critical thinking and creativity. To achieve this objective, system development team and field teachers have given considerable efforts. Owing to their efforts, the expressive ability of students in demonstration schools was shown to improve.

According to the fifth comprehensive demonstration research report, students of demonstration schools commented more often on the topics related to higher thought processes than those in control school during the teaching-learning process.

The subjects of the fifth comprehensive demonstraction was three classes each of third and fifth grades for six demonstration schools and six control schools. In view of the time allotment for the question-answer activity in the social studies, class, which amounts to a total of 72 hours question-and-answer time spent, in demonstration schools was 50% of total class hour (40 minutes), longer than that of control school, which was 40%. This result shows that the expressive ability of students in demonstration schools was improved and activated.

According to the research report[4] by Baikun Elementary school in Daejun, which analysed the question and answer process, in March and in September twice using Filandor's language interaction analysis, the lecture time occupied 51.5% of total class time in March. This had increased to 84% in September whereas voluntary comments of students dramatically increased from 0.4% ot 32%. This means that the application of the new educational system changed teacher-initiated instruction to student-initated instruction.

The evaluation report by the Evaluation Committee, which analysed opinion papers of 11 city/province superintendents, shows that the expressive ability of students in demonstration schools was much improved through such activities as the inquiry learning practice.

According to a research report[5] by Chungryong Elementary School in Boryung, which measured the frequency of inquiry questions by students, in the "Nature" class in the early part of March and at the end of May, the number of question increased in May. At the early part of March, most of the inquiry questions were asked by superior students, whereas at the end of May, the number of inferential questions made by middle or lower level students has increased. The contents of questions have also changed from simple questions to those of inquiry types.

C. Formation of positive self-concept toward learning

Although the new educational system does not provide programs on cultivating student's affective characteristics, it can be analyzed that the improvement of their learning achievement level contributed to the formation of student's positive concepts toward learning.

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4) Baikun primary school, "A Research Report on the Application of New Educational System," 1977.

5) Chungryong Elementary School, "A Research Report on the Application of the New Educational System," 1979.

The fouth and fifth comprehensive demonstration research reports indicate, that after the application of the new educational system, student's self-confidence on learning has improved.

According to the fouth comprehensive demonstration research report, the students in demonstration group tended to have more positive self-confidence on learning. 66% of the teachers in demonstration schools (4,393 subjects) affirmatively replied to "More than 50% of the students have self-confidence on learning" whereas the percentage of control school teachers was only 37% (244 subjects).

According to the fifth comprehensive domonstration report, 92% of teachers in demonstration schools (36 subject out of 39) responded that the number of students with self-confidence on learning has increased after the application of the new educational system.

The evaluation report by Evaluation Committee, which analyzed opinion papers of 11 city/province boards of education, also shows that the learning motivation of students was improved after the application of the new educational system. Students with partial learning deficiency in particular have shown more self-confidence on learning than before.

Most of the research reports by demonstration and cooperating schools also showed that student's self-concept on learning has improved after the application of the new educational system.

In case of Yaesung Elementary School in Chungju[6], 57% of the fifth grade students gave positive responses by saying "I have the confidence to do well in learning," in March, 1978. The percentage had increased to 73% in October of the same year.

D. Increased interest on learning

Although the new educational system did not include any programs

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6) Yaesung Elementary School, "A Research Report on the Application of the New Educational System," 1978.

designed to increase the student interest on learning, it can be logically expected that the satisfaction of intellectual achievement contributes to raising their interest level on learning.

According to fourth and fifth comprehensice demonstration research reports, 45% of teachers in demonstration schools (505 subjects) responded, "More than 70% of students are interested in studying" wheres the percentage was only 16% among control school teachers (246 subjects). This result shows that students in demonstration schools have more interest on studying than those of control school.

In the questionaire for teachers in demonstration schools, 92% of teachers (36 subjects out of 39) responded that "the number of students who are interested in studying has increased after the application of the new educational system".

For example, in Daesung Elementary School in Kapyung[7], 41% of students responded affirmatively to "studying is interesting" at the fourth comprehensive demonstration and it was increased to 57% at the fifth comprehensive demonstration.

In the case of the West Elementary School in Anyang[8], 36% of students positively responded to "Studying is interesting". It was increased to 54% after the third comprehensive demonstration.

E. Improved attitude for cooperation among students

One of the objectives of the New Educational System was to reduce competition through the organization and the utilization of mutually cooperating learning groups, and thus increasing cooperation among students. According to the second, third, and fourth comprehensive demonstration reports, teachers in demonstration schools agreed

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7) Daesung Elementary School, "A Research Report on the Result of the Application of the New Educational System," 1979.

8) West Elementary School, "A Research Report on the Result of the Application of the New Educational System," 1977.

Table IV-2 Mean & SD of Basic Learning Skills in 5th Comprehensive Demonstration

Grade			4th Grade					4th, 5th, 6th Grade				
			Language Skills	Mathematical Skills	Utilization Skills of Materials	Total		Language Skills	Arithmatic Skills	Utilization Skills of Materials	Total	
4th Grade	Number of Items		60	40	20	120		110	61	30	201	(100
	Demonstration N = 365	M	41.60	32.55	15.45	89.60	74.66	72.04	42.76	21.90	136.70	68.00
		SD	10.54	4.99	3.03	13.40	11.21	19.16	7.77	4.50	23.49	11.68
	Control N = 364	M	37.21	26.96	12.89	76.99	64.15	62.37	33.90	17.96	114.12	56.77
		SD	10.05	7.36	3.62	16.43	13.69	17.93	9.30	4.97	25.69	12.78
	Significance Test of Mean (F)		35.59***	145.01***	103.09***	132.32***		53.95***	201.1***	131.71***	161.17***	

Grade			4th, 5th, 6th Grade					4th, 5th, 6th Grade				
			Language Skills	Mathematical Skills	Utilization Skills of Materials	Total		Language Skills	Arithmatic Skills	Utilization Skills of Materials	Total	
5th Grade	Numbers of Item		90	51	25	166	(100	110	61	30	201	(100
	Demonstration N = 378	M	65.27	40.66	20.12	125.84	75.80	81.03	46.87	23.13	150.81	75.02
		SD	14.11	8.46	3.87	19.44	11.71	16.38	10.11	4.55	23.10	11.49
	Control N = 363	M	57.85	35.19	18.33	110.92	66.81	71.12	40.15	20.88	131.63	65.49
		SD	15.67	10.05	4.58	22.74	13.69	18.54	11.75	5.32	27.24	13.55
	Significance Test of Mean (F)		47.38***	66.10***	32.74***	95.40***		59.89***	71.81***	40.36***	109.4***	

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Table IV-4 Mean & SD of Achievement Test by Demonstration & Control Groups After 4th Comprehensive Demonstration

Grade			Korean Language	Arith Matics	Social Studies	Science	Moral Education	Music	Fine Arts	Practical Arts	Mean
2	Demonstration	M	86.33	85.49	76.99	78.79	84.14	79.08	77.33		81.18
		SD	12.45	15.16	16.64	16.10	13.48	14.31	16.13		11.34
	Control	M	76.95	76.52	69.04	76.97	77.19	69.29	71.20		73.83
		SD	17.43	20.26	19.10	17.76	17.26	19.11	20.57		15.14
	Difference Test of Mean (F)		119***	67***	65***	5*	58***	101***	39***		99***
	Difference Test of SD(F)		1.97**	1.79**	1.32**	1.22*	1.64**	1.78**	1.63**		1.78**
3	Demonstration	M	89.33	86.55	83.84	81.45	87.52	77.56	70.04		82.36
		SD	11.61	13.65	15.32	13.23	10.74	15.58	16.87		10.48
	Control	M	80.73	80.40	74.06	74.30	84.67	65.82	61.93		73.76
		SD	16.15	16.66	18.43	13.82	13.31	17.90	17.30		13.50
	Difference Test of Mean (F)		116***	53***	99***	75***	21***	122***	75***		147***
	Difference Test of SD (F)		1.94**	1.49**	1.45**	1.09**	1.54**	1.32	1.05**		1.66**
4	Demonstration	M	83.73	75.56	70.09	78.56	84.71	77.41	72.66	65.01	75.97
		SD	11.18	18.45	17.77	15.21	13.55	15.47	16.16	16.52	12.00
	Control	M	75.45	58.95	54.05	67.88	78.79	64.55	61.03	53.72	64.10
		SD	16.41	19.99	20.09	19.54	17.70	17.37	17.74	15.35	14.70

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Table IV-4 Mean & SD of Achievement Test by Demonstration & Control Groups After 4th Comprehensive Demonstration

Grade			Korean Language	Arith Matics	Social Studies	Science	Moral Education	Music	Fine Arts	Practical Arts	Mean
	Difference Test of Mean (F)		104***	209***	198***	105***	39***	182***	141***	136***	227***
	Difference Test of SD (F)		2.15**	1.17***	1.28**	1.65**	1.71**	1.26**	1.21**	1.16**	1.50**
5	Demonstration	M	84.00	78.35	80.62	83.17	86.35	72.48	78.45	71.25	79.30
		SD	12.11	17.69	16.68	11.62	11.14	17.06	16.01	15.56	11.40
	Control	M	77.25	65.81	69.79	73.48	81.39	58.70	67.52	60.42	69.23
		SD	13.48	19.84	18.11	14.38	13.41	19.17	16.55	16.13	12.59
	Difference Test of Mean (F)		79***	121***	102***	138**	41***	155***	53***	122***	181***
	Difference Test of SD (F)		1.24**	1.26**	1.18**	1.53**	1.45**	1.26**	1.07**	1.07**	1.22**
	Demonstration	M	83.84	84.96	87.40	78.36	87.65	84.21	77.31	73.35	82.01
		SD	10.89	17.00	12.02	12.24	8.94	16.33	15.78	16.11	10.54
	Control	M	7.38	73.30	76.09	68.97	83.06	67.04	62.69	65.23	71.18
		SD	13.94	13.25	18.62	15.78	13.13	22.31	17.39	17.65	13.60
	Difference Test of Mean (F)		216***	188***	138***	122***	40***	224***	250***	68***	248***
	Difference Test of SD (F)		1.64**	1.65***	2.40***	1.66**	2.16**	1.87**	1.21**	1.20**	1.66**

that the greatest benefit of mutually cooperative learning groups was in nurturing the cooperative attitudes of students.

According to the Research Report of North Elementary School in Cheju[9], 87% of students out of a total of 1,186 subjects positively responded to "I like mutually cooperative learning method", 64% of students to "I help others because I want to", and 72% of students responded to "I feel happy and satisfied after I help other classmate with learning". 41% of students responded to "I feel nothing negative when I was helped in learning", 44% of students to "I was happy to be helped", and 67% of students responded to "we can become better friends through mutually cooperative learning."

It can be interpreted as a testimony that by practicing mutually cooperative learning, students feel happy and satisfied and trust other students by understanding each other better and have better communication between students.

Traditional learning attitude of "I have to do well" had changed into cooperative one of "We all have to do well". It contributes to the harmonious formation of human relationship, and raises the group community consciousness.

The evaluation report by Evaluation Committee, which analysed reports of 11 city/province boards of education also show such increase after the application of the new educational system. Many research reports of demonstration and cooperating schools also showed similar results.

3. Changes in School Management

A. Rationalization of School Management

The new educational system requires; selecting of clear educational

9) North Elementary School, "A Research Report on the Application of the New Educational System," 1977.

and school management goals at the beginning of each term and evaluating the degree of accomplishment of the objectives. And, the results of the evaluation are reinputed into the school management process to rationalize the school management system. When the results of the reserarch, that have been conducted up to now, are synthesized, it can be seen that the schools applying the new educational system are being transformed into those actively using the management-by-objectives method from a passive management without specific objectives. Particularly with the introductions of the management by objective and the grade level management systems, all teachers in same grade levels collectively establish the grade management plan, plan weekly management activities and record the contents of daily activities in the 'School Management Record'. In this process, teachers can begin their daily duty with clearer sense of objectives, can have the opportunity to evaluate and reflect on the results. In this process, the rationalization of the grade management process also becomes possible.

According to the report on the fifth comprehensive demonstration, 93% of teachers in demonstration schools cite the improvements through the management by objective method among their assessment of the utilization effects of the new school management system. The report by the Evaluation Committee also reports, through the analysis of opinions by 11 city and provincial boards of education, that the schools applying the new educational system have systematized, organized and rationaly operated thier school management affairs. The same report, based on the questionaire targeted for principals, vice-principals, teachers, superintendants and researchers, point out that 92% of the respondents cite the "rational operation of educational curriculum" as the result of the application of the new educational system.

B. Improving the quality of curriculum operation

The contents and methods described in the teacher's guide for

each subject area under the new educational system well reflects the basic spirit and contents of the curriculum currently being used. Therefore, conducting of classroom instruction according to the teacher's guide would provide the opportunity to realize the nomalization of educational curriculum operation.

Also, the new educational system enables a thorough preparation for instruction by coordinating its progress and by teachers presenting and discussing their instructional materials ahead of time through conferences among teachers in respective class-groups and grades.

According to the Fifth Comprehensive Demonstration Report, 100% of demonstration school teachers responded that "the application of the new educational system contributes to a more normal curriculum operation". It is analyzed in particular, that the adoption of subject departmentalization of instructions for Fine Arts and Physical Education subjects produced a noticeable change in this area. The Fine Arts and Physical Education subjects, which have often been neglected the most, were now normally operated with as much emphases given to them as would to principle subjects. Also, the academic ability between classes showed increased equalization with an overall upward improvement. It is also reported that the trends of overall improvements toward normalization have been indicated in the entire spectrum of the operation of the educational curriculum.

C. Expansion of the opportunity to participate in management by teachers

The accomplishment of given objectives requires frequent opportunities for management participation and group thinking in the processes of planning, implementation and evaluation of educational activities. In order to strengthen such cooperation system among teachers and to emphasize the management participation of teachers through voluntary cooperation, the new school management system systematized grade-centered management and promoted conferences

for same grade teachers. According to the report on the fourth comprehensive demonstration, 99% of sampled teachers in demonstration schools responded that such conferences are helpful for an effective grade operation. The report on the fifth comprehensive demonstration also showed that 90% of teachers regarded the opportunity to participate in the decision-making process as an effect of the application of the school management system. 86% of teachers studied also responded that the new system resulted in improving the intercommunications and interelationships among them. These results indicate that the new school management system provides a large contribution in expanding the opportunity for management participation by teachers and in improving the relationships among teachers.

According to a research report by the Dongkwang Elementary school in Kimhae, the reason for the improvements in cooperation among demonstration school teachers was analyzed as primarily due to the change of school management from a closed system into an open system. Also, the personnel organization based on work assignments helped in promoting cooperation between the management and the teachers.

The Evaluation Report of the Evaluation Committee also points out that the interrelationships between teachers were strengthened as the result of the change in management system. It also reports that the group thinking opportunity for teachers was expanded and that the cooperation system among them was strengthened.

D. Workloads of teachers

The school management system divides each subject areas equally and teachers can intensively study his/her own assigned subject area. The results of such study are then presented and discussed in teacher's conferences, composed of teachers in same grade and class-groups.

The report on the fourth comprehensive demonstration indicates that 69% of the principals responded that their workload was reduced

and no principal stated that the workload was increased.

According to a research report prepared by the Yesung Elementary School[12] in Choong-Joo, the factors that contributed to the changes in teacher workload are as follows: 1) time saved in not having to mobilize numerous reference materials because of the availability and the utilization of the teacher's guide; 2) reduction of time spent in preparing for instruction due to the departmentalization of instruction for Fine Arts and Physical Education subjects; 3) time saved for developing and copying evaluation questions; and 4) time saved through cooperative guidance of slower learners. The report also indicates other effects, including: 1) reduction of workloads of teachers by sharing and assignment of duties for entire grade level; and 2) lessening of psychological burden of workloads as competition mentality is easened among teachers with the reduction in the difference of achievement records due to the equalization of instructional skills among classrooms.

The Report by the Evluation Committee, which analyzed the opinion papers of 11 city and provincial boards of education, also points out that workload is fairly divided and was greatly reduced for all teachers in school because of the introduction of the new educational system.

4. Improvements in the Quality of Teachers

In order to maximze the effects of education, the new educational system developed: the general model of instructional system sub-models for each subject area, the management system and various types of teaching-learning materials.

These principle elements of the new system were designed by incorporating educational theories that were most up-to-date. Also attempted was raising the degree of understanding on the new educational system by the teachers through various kinds of training activities including preliminary intensive training programs for an effective application of the system in the operation process of the new

educational system. Also, in the field, the skills for applying the new educational system were fostered through self-training programs and various kinds of teacher conferences. As the result, it is confirmed that the improvements and the equalization of instructional skills among demonstration school teachers were achieved.

A. Improvements in subject instructional skills.

As pointed out in the report on the first comprehensive demonstration, the results of a questionaire and interviews conducted indicate that demonstration school teachers were able to approach their instruction with considerable more confidence even in dealing with new kinds of learning guidance methods-including inquiry process centered learning-required by the new educational curriculum.

It was also found that teachers, by being able to conduct a superior instructional operation, can feel the reward and pride in their efforts for the students. It was particularly reported that the preparation of teaching materials became much more through and related guidance skills also improved considerably with the operation of the subject departmentalization of instruction for Fine Arts and Physical Education, which previously have been neglected.

The reports on the fourth and fifth comprehensive demonstrations also report that the application of the new educational system improved the professionalization of teaching personnel as the high majority (91%-97%) of related people (principals, vice principals, superintendents, researchers) expressed such opinions.

The demonstration schools in West Anyang and North Cheju also report that the application of the new educational system made it possible: to increase the degree of understanding of the new curriculum learning guidance methodologies; to have the values on subject areas and on instructional materials appropriate to the particularity of each subject matter; and to instill in them the confidence in teaching. It also reported that the newly acquired instructional skills, acquired

through such KEDI-initiated training programs as intensive trainig, field training and self-training enabled them to lead the instructional activities.

B. Equalization of instructional skills

The departmentalization of subject instruction and assignment study system in the school management system have brought the result of equalization of instructional guidance skills among teachers. The presentations and discussions on text materials and instructional study in the teacher conferences expanded the opportunities for group-thinking and cooperative activities among teachers in the same grade. It also supplements any deficiency an individual teacher may have in the actual instruction.

According to the report on the first comprehensive demonstration, which reports the result of a questionaire on teachers, the trend of a gradual equalization in the instructional skills of the teachers was evidenced in demonstration schools. It was consistently responded that it was particularly helpful to those teachers with less than 2-3 years of teaching experience. It also reports that any deficiency which each teacher may have in the actual operation of the curriculum and in learning guidance have been supplemented by the discussions on the results of teaching material preparation for assigned portion of subject matter at the daily teacher conference, made to operate every day during the demonstration period.

According to the report on the fifth comprehensive demonstration, 97% of demonstration school teachers responded that the equalization of instructional guidance skills among teachers were achieved as the result of the application of the school management system. The Evaluation Committee also reports that improvements in learning guidance capacity, creation of study atmosphere for teachers and the equalization of instructional skills were made as the result of the changes in the management system. Such reports can be also evidenced in the demonstration schools of West Anyang and Noth Cheju.

PART 3. DISCUSSION AND PROSPECT

CHAPTER V. IMPACT ON EDUCATION IN GENERAL

1. Nation-wide Diffusion of the New Educational System

A. The validity of the diffusion of the new educational system

In order to have a deeper understanding of the effects of the new educational system, it is necessary to study its wider impacts on Korean education in general rather than limiting the inquiry to effects within participating schools. This is because the new educational system involved more than subject schools and its results were disseminated to many regular schools during its implementation process. It provided a wide range of opportunities for training school personnel, including supervisory and research personnel, in the educational field. The diffusion effect was also great with wide participation by experts in various academic disciplines in the research process.

The reasons for such a wide interests and efforts for the diffusion of the new educational system are as follows.

First, the new educational system development project was a national-level research project basically aimed at innovating Korean education in general. As explained in the Background section of this study (please refer to Chapter I), the primary purpose of the government in establishing the Korean Educational Development Institute (KEDI) was to conduct comprehensive researches on educational problems in Korea and to develop and diffuse an educational system which can solve such problems in a rational manner. For this effort, the government has implemented several administrative measures. Included are measures for budgetary support necessary for the establishment of KEDI and applying the results of reseraches in its educational policy. In this sense, the nation-wide diffusion of the new educational system and the implementation of teacher training programs were extremely natural processes.

Second, the demands from educational fields were extremely high during the implementation process. Requests particularly for instructional materials and teacher training were so heavy, it was difficult for KEDI to meet all the demands. It is analyzed that the reason for such heavy demands from educational fields was because the new educational system well fitted the needs felt in the field. It was widely felt that, since the repeal in 1968 of the middle school entrance examination system, as an effort to improve the nation's educational system, the primary school education has been facing some serious problems due to several factors.

The heavy social concern on primary school education was shifted to middle school education in connection with the high school entrance examination, and accordingly, the morale of primary school teachers was considerably lowered.

Also, educators in the field were desperately waiting for a new momentum for educational innovations since the academic achievement level of students was seriously deteriorating and solutions to such problems as over-crowded classrooms, over-sized schools, inadequate instructional materials and equipments and undesirable learning environments were imminent.

Further more, what the educators in the field were particularly concerned about was the lack of sufficient teaching-learning materials. It was commonly pointed out that such materials would contribute: 1) to reducing teachers' work-loads while enhancing their capacity for academic guidance; 2) to significantly improve academic guidance system not only for students in over-crowded classrooms but also in raising the academic achievement levels of those in rural farming and fishing areas where the levels of academic achievements traditionally have been low, and 3) in operating multi-level classes in the remote islands and hinterlands.

Based on such reasons, the nation-wide diffusion of teaching-learning materials was promoted, and to support their proper and efficient utilization, a large-scale teacher-training program was inevitably demanded.

B. The diffusion to demonstration schools

The nation-wide diffusion of the new educational system and the teaching-learning materials were accomplished through largely three stages. The first stage is the operation of demonstration schools for the comprehensive demonstration study. The second stage is the extension to cooperating schools. And, the third stage was the application to ordinary schools.

The operation of demonstration schools, as the first stage, was the direct target of the new educational system project. The number of demonstration schools, grades, classes and students, as explained in Chapter III, constitute the scope of the diffusion of the educational system. The demonstration schools at the time of the comprehensive demonstration in the first stage were selected from five municipal and provincial areas, that is, the capital city of Seoul, and KyungGee, KwangWon, ChoongBook and ChoongNam provinces. But, it was expanded to include eleven city and provincial areas in the nation during the second comprehensive demonstration. However, the number of total schools involved was not changed greatly with only 14 to 18 schools participating.

C. Expansion to cooperating schools

1) The need for the operations of cooperating schools

"Cooperating schools" are the first target for the diffusion of the new educational system and have the appropriate characteristics for application for the nationwide propagation of the new educational system. "Demonstration schools" possess the characteristics of experimental schools for the development of the new educational system and thus are concerned about the very purpose of the project while cooperating schools are significant in that they contribute in building the foundation for the universalization of the new educational system.

The operation of cooperating schools began in late October, 1975,

that is, one month after the start of the first comprehensive demonstration. The demand for such operation was largely because of the following two reasons.

First, cooperating schools were necessary in achieving the research objectives. As previously pointed out, the new educational system project was a research not simply for the realization of its academic objectives but also for its diffusion through a rational policy decision-making process. Therefore, the operation of demonstration schools placed its emphases in clarifying the efficiency, validity and field applicability of the new educational system as well as in collecting basic materials necessary for the revision and improvement of the system. However, for the new educational system to be diffused across the country, it was necessary to explore the generalizability of the system by identifying the effects and problems that may arise when the new educational system is applied to the normal operational circumstances of schools. Generally, the demonstration schools are equipped with relatively ideal conditions, thus problems are usually expected when the results of demonstration schools are applied to schools with different circumstances. Therefore, it became necessary to clarify what differences exist in applying the new educational system to individual schools with different characteristics, and based on this, to collect basic materials necessary for universal diffusion by clarifying effective solutions.

Second, the speed with which the expansion of the diffusion to cooperating schools was realized was possible due to the unexpectedly swift demands from relevant administrative agencies and schools in the field. The teaching-learning materials and teacher training programs provided along with the implementation of the first comprehensive demonstration attracted a wide interest from related people in city and provincial boards of education and city or country offices of education, immediately raising the demand for expanded application of the new system.

2) The basic direction in the operation of cooperating schools.

KEDI basically assumed following principles in the operation of the cooperating schools.

First it was one of the operating principles that only one cooperating school was selected and operated at each city or country level in order to prevent the burden and confusion that may arise from excessive expansion for teacher-training or field guidance. And, cooperating schools were selected among schools with:

(1) strong desire for educational innovation.

(2) capacity to carry out the study and

(3) large capacity to diffuse the effects of the results of the application of the new educational system.

The selection of subject schools was left entirely upto the city or country offices of education.

Second, it was decided that only those parts of the new system which are perceived as sufficiently applicable to present school conditions to be applied selectively rather than attempting to apply the new system in its entirety. And, the collection of materials necessary for carrying out the study was also accomplished within this scope.

Third, by maintaining a close cooperation system with relevant officials of the offices of education, the cooperating schools were operated as "center schools" which lead other area schools in educational innovation at the local level.

Fourth, KEDI's support for the operation of cooperating schools included the following: 1) KEDI kept the price of the teaching-learning materials low, to the level of its actual printing expenses and subsidized a considerable portion of the cost by establishing its own budget which amounted to about two hundred million won every year. 2) for the teacher training, field guidance was carried out in 1976, in the form of visit guidance, after then, allowed senior level teachers to participate in city and provincial level training programs held annually, and visit-guidance program was provided when specially requested, and 3) various types of training materials or research reports were provided

continuously and counselling program was carried out through correspondence.

3) The current status of the operation of cooperating schools

The operational status of cooperating schools between 1975 and 1980 is shown in (Table V-1)

Table V-1 Number of Classes and Students in Cooperating Schools (1975-1980)

	1975 (First comprehensive demonstration)	1976 (Second comprehensive demonstration)	1977 (Third comprehensive demonstration)	1978 (Fourth comprehensive demonstration)	1979 (Fifth comprehensive demonstration)	1980
Subject grade	3.5	3.4.5	3.4.5.6	2.3.4.5.6	1.2.3.4.5.6	1.2.3.4.5.6
Number of schools	127	145	164	228	268	234
Number of classes	697	1,364	2,670	3,612	4,532	5,910
Number of students	39,387	79,437	147,619	200,374	241,200	227,504

For three years from 1975 to 1977, the number of cooperating schools was equal to or below the number of city or country offices of education (at present 163). But, since 1978, more schools have been participating as cooperating schools. While the number of cooperating schools shows no drastic change, the number of classes and students has been increasing continually with the expansion of subject grades for the demonstration study.

D. Expansion to ordinary schools

1) Background for expansion

The diffusion of the new educational system entered into the stage of its nation-wide expansion when regular schools were provided with opportunities for its application in 1978, that is, after three years since the launch of comprehensive demonstration project. Such expansion policy was adopted after the overall consideration of official and unofficial evaluations of the new educational system by the Ministry of Education and the demands from the field. The background to the expansion of the policy is roughly as follows.

The request from the field for the new teaching-learning materials was immediate and wide. But, KEDI did not provide the material to those other than the demonstration and cooperating schools designated by city and provincial boards of education. This was because the research on the new educational system was still in progress and the policy decision still needed to be made before its nationwide diffusion and KEDI was afraid of possible side effects which the expansion of this new educational system could produce. But as demonstrations continued, the effectiveness of the new educational system was widely confirmed with very positive results shown in the fields. These results were reported to the authorities in the Ministry of Education several times through conferences involving school superintendents, directors of bureaus of academic affairs, heads of the sections for elementary education and directors of educational research institutions and other concerned parties across the nation. Proposals for bold expansion measures were submitted. The official evaluation activities by the Ministry of Education on the new educational system were made possible in 1978. The Ministry of Education had organized 'the New Educational System Evaluation Committee' (professor Joonhee Park, Chairman) which was composed of 28 numbers including educators, teachers in the field and related officials of the Ministry of Education

and boards of education and so on. The committee was made to conduct an extensive evaluation for the duration of five months begenning in May, 1978. Then, in November of the same year, a national conference to report the findings of the committee was held with related participants. Such evaluation activities by the Ministry of Education have significant implications from the following standpoint. First the Ministry of Education officially acknowledged the effectiveness of the new educational system. And secondly, the groundwork was now laid for the nation-wide diffusion of the new educational system, with the city and provincial boards of education given autonomous responsibilities to diffuse the new educational system, which had been restricted to demonstration and cooperating schools, to regular schools.

2) The status of diffusion

The expansion of the new educational system to regular schools, strictly looking at it, was really the diffusion of teaching-learning materials rather than that of the entire educational system This is because: 1) The regular schools could not provide the workbooks, that have very important functions in the instructional process, to every student: 2) the scope of adopting the new system was severely limited because the adoption of the school management system was only an encouraged item: and 3) the teacher training, which is indispensable in the operation of the new educational system, could not be provided systematically.

Therefore, the expansion of the new educational system to regular schools, regretfully, ended at only the partial application of the new system. Still, it can be said that a great contribution was made at least in providing considerable help to teachers in their instructional activities through the utilization of teaching-learning materials.

The status of diffusing teaching-learning materials to regular schools is shown in (Table V-2)

Table V-2 Status of Distribution of Materials to Regular Schools

	1978	1979	1980
Number of schools	777	1,299	2,308
Number of classes	4,090	9,103	20,544
Number of students	9,870	28,863	144,685

* Number of classes is number of 'teacher's guides' distributed. Number of students is based on number of workbooks distributed.

As shown above, the diffusion of materials to regular schools since 1978 was rapidly expanded to include 2,308 elementary schools by 1980, which is more than one third of the total number of elementary schools across the country (6,450 schools). But the reason that number of students remained low was because the estimation was made based on the number of workbooks distributed. Nevertheless, it is certain that the number of students who will benefit from the system will be greatly increased considering that some 20,544 teachers were carrying out instructional activities based on the new educational system.

In addition, these materials were also distributed to the schools for Koreans living abroad. In most cases, these compatriots living abroad came to be acquainted with these materials by chance and requested them through the Ministry of Education, or directly to KEDI. Materials were provided to Koreans residing in such countries as the United States, Saudi Arabia, Iran, Singapore and Indonesia and the entire expense for these materials were borne by KEDI.

2. The Relationship with Training Activities and Teacher Training Institutions

In connection with the nation-wide diffusion of the new educational system, KEDI made efforts to keep the cooperation system

with teacher training institutions along with the wide range of training activities in the field. The need for and the status of activities are reviewed here.

A. Training activities

1) Need for training activities

As would be with each type of educational innovation projects, the need for training activities was even more real in the case of the new educational system development project. The reasons presented are in the following several areas.

First, a systematic understanding of the new educational system was required since, more than any other research projects, it encompassed a wider scope of problem area and a number of theories was comprehensively taken into consideration.

Second, an accurate understanding and operation of the new educational system was required since the new system made use of instructional procedure and materials which were much different from previous instructional operation methods.

Third, since the research involved the entire subject areas (9 subjects), more training programs were required in order to carry out the instruction effectively.

Although the primary target of training activities was teachers who will be directly responsible in providing instructions based on the new educational system, they also included principals, assistant principals and other senior level teachers participating as well as the academic and research staff within city and provincial boards of education and city and country offices of education (educational districts) which were providing supervision and guidance over these schools. Also, in all training, the teachers in regular schools or those in neighboring schools using the new teaching-learning materials, as well as those in try-out and cooperating schools were given the opportunity to participate.

Generally, the content dealt with in the training included the

following: 1) the problems in Korean Education and the need for innovation; 2) the theoretical background to the development of the new educational system; 3) the utilization of the instructional system and teaching-learning materials; 4) school management system and 5) the reality of operation in the instruction of each subject area. They also partially included the item related to the operation of the broadcast instruction.

2) The implementation of training activities

Training activities were carried out largely in the forms of preliminary intensive training, field training and the research report conference.

The preliminary instensive training was given to the teachers who would be responsible for giving instructions based on the new educational system for the first time. It was carried out at the beginning of each school year for teachers in schools designated as tryout or cooperating schools and for teachers who were newly transferred in from other schools. Ordinarily, it consisted of one or two days' training at city and provincial level and placed emphasis on general matters concerning the operation of the system and the utilization of materials as well as methods, for instructional guidance in major subject areas.

Field training was executed by cities and provinces mainly during the period of summer vacation and its purpose was in providing more involved training in methods of subject area guidance for 2 to 4 days for teachers with some understanding of the new educational system. Another kind of field training was in the form of having teachers visit tryout and cooperating schools to directly observe the operation of the instructional process, and on the basis of this, hold training and conference sessions, while KEDI responded to special requests from schools for training. But in most cases, KEDI followed its own planning and by around 1976, this field training covered almost all the cities and counties of the nation with the exception of one or two island

areas.

The field training which usually lasts from 5 to 8 hours was, in most cases, conducted with 50 to 200 teachers from neighboring schools. This way, the training programs usually took the form of regional level training conferences.

The guidance for research conferences was made when try-out or cooperating schools held research conferences or open classes about the new educational system in the form of guidance and special lectures. In this case, training was done ordinarily in the scale of 100 to 300 persons on the basis of contents of research conference or open classes.

These training activities mainly consisted of leactures, but they also provided the conferences with question and answer opportunities, and if necessary, slide or VTR materials were also utilized. Most slide materials were those in which contents of lectures were systematically arranged and which covered almost all subject areas. VTR material contained practical methods for the instructional management of some principal subjects. The actual results of various kinds of training activities from 1975 to 1980 are shown in (Table V-3).

Table V-3. Status of Teacher Training

	No. of training	No. of participant	No. of training	No. of participant	No. of training	No. of participant	No. of training	No. of participant	No. of training	No. of participant	No. of training	No. of participant	No. of training	No. of participant
Intensive training	6	250	36	962	58	4,476	49	4,655	17	1,622	18	1,472	184	13,437
Field training	–	–	206	20,600	106	10,600	36	13,800	17	1,700	–	–	365	36,700

3) The publication and diffusion of training materials

KEDI conducted direct training activities and developed and diffused various types of training materials to enhance their effectiveness. Training materials were provided largely in the following three forms.

The first type of materials are those dealing with theoretical backgrounds of the new educational system and the reality of its operation

including such items as training materials for the first comprehensive demonstration, and handbooks for school educational system, subject guidance metnodology and school management. KEDI published four kinds of books and distributed them across the country during the period of comprehensive demonstrations.

Second, as means to explain detailed items on the operation of comprehensive demonstrations and to answer frequent questions of teachers, a series of five publications with total volume of 12,500 were published and distrited.

The Third form is a periodical publication titled Field Education Research". The purpose of this bi-monthly periodoical was to suggest measures to solve the problems faced in the field, to introduce new educational theories and to provide a guidepost in solving real problems that may arise in the process of applying KEDI's new system. This 12 to 16 page volume of "Field Education Research" was published 27 times since the first publication in August, 1974 to 1979 at which time, it was bound together as "Educational Development". 15,000 copies were printed for each publication and they were distributed to educational personnel and schools across the nation.

Table (V-4) shows the status of various kinds of training materials published and distributed between 1975 and 1980.

Table V-4 Status of Teacher Training Materials Published (1975-1980)

Name of Material	'75	'76	'77	'78	'79	'80
Teacher Training Material	700	3,000				
School Education system			3,500		2,000	
Subject Guidance I				2,000		
Subject Guidance II					2,000	
School Management Handbook					1,000	
Operation Guide					2,000	1,300

4) Promotion of self-training capacity of city and province

What deserves to be recorded separately in connection with KEDI's training activities is the promotion of "the new educational system self-training team at city and province level".

Since 1978, as the new educational system expanded to regular schools, demands for teacher training drastically increased to the point that KEDI no longer was able to meet all such demands through direct guidance alone. Meanwhile city and provincial boards of education also recognized the need to take their own responsibility and capacity for training rather than depending on KEDI. Consequently, KEDI held a four days' intensive training conference in three regions between June and July of 1980 for "self-training teams" composed of 5 to 8 members recommended at each city and provincial units. These teams were composed of people with deep understandings of the new educational system and included supervisory and research personnel and teachers in demonstration and cooperating schools.

Participating in the team is a professor of education from each relevant teacher's college. The intensive training conference proceeded according to the following format. Intense discussions were made about theoretical aspects of the new educational system. The training team would visit two tryout schools and observe classroom instruction process. And, on the basis of these preceding activities, conference was held for involved discussions concerning instructional operations. This training conference has a great significance in that it put together persons who were more or less accustomed to the new educational system project and provided them with an appropriate system in which they can take their own responsibilities in providing academic guidance.

B. The cooperation system with teacher training institutions

1) The need for cooperation system

The effort to build a cooperation system with teacher training institutions was a part of the larger effort to expand the diffusive effects of the new educational system and to enable permanent settlement of the new system in the field with a long-term perspective.

While the training of in-service teachers has the advantage that it can produce effects through its immediate application into the instruc-

tional process. The effects do not pass beyond the trainee. Thus, despite KEDI's continuous efforts through training activities, the newly appointed teachers just graduated from teacher's colleges were always needed to be trained. There were the problem of the lack of linkage with various types of retraining programs, that were centered around teacher's colleges, offered.

Therefore, the purpose of the effort toward building a cooperation system with teacher training institutions was in expanding the diffusive effects of the new educational system by including the training portion of the new educational system into the curricula of teacher's colleges and attached training institutes. This effort was made in two forms: one is the cooperation system with related faculty in teacher's colleges and the other is the one with the primary schools affiliated to teacher's colleges.

2) The cooperation system with the faculty of teacher's colleges.

The cooperation system with the faculty of teacher's colleges was achieved as a part of "self-training team at city and province level" promotion plans as previously mentioned. This system aimed to seek voluntary cooperation of related professors in charge of "educational curriculum and instructional guidance" at teacher's colleges by having them participate in the self-training team at city and province level and check the theoretical foundations of the new educational system and the impact of the new system in the field.

Before the formation of the "Self-Team" Conference in July, 1980, KEDI held a preliminary conference with professors of teacher's colleges and sought sufficient understanding and agreements from them. The succeeding four days of discussions and field observations followed.

It is expected that these professors of teacher's colleges will largely play two roles in connection with the research on the new educational system. One is that they will be able to play a voluntary role in introducing or supporting the new educational system into regular educa-

tional curricula of teacher's colleges and in training in attached training instititutes. The other is that they can provide theoretical level of training when invited by responsible city or provincial boards of education in carrying out the training for the new educational system according to local planning.

3) Cooperation system with primary schools attached to teacher's colleges

The reasons for KEDI's concern on primary schools attached to teacher's colleges in connection with its efforts to diffuse the new educational system was because the teaching experience as student teachers from teacher's colleges is first acquired in these schools. In this sense, such efforts would have a significant influence on the primary school education community.

In other words, it was in enhancing the understanding of the new system by teacher's college students through direct contact with the reality of instructions by classroom observations and student teaching experiences. For these purposes, KEDI has formed a cooperation system with 11 primary schools attached to teacher's colleges across the country since 1978, and is providing them with necessary teaching-learning materials at its own expense and carrying out the training programs for teachers in charge of the classes to which the new educational system was applied. As for teaching-learning materials, KEDI supplied second grade materials in 1978 and second and third grade materials since 1979.

Table V-5 The Status of Materials Distribution for Primary Schools Attached to Teacher's Colleges

	1978	1979	1980
Grade applied	Second grade	Second and third grade	Second and third grade
Number of schools	11	11	11
Number of classrooms	29	58	63
Number of students	1,730	3,480	3,780

3. Impact on Education in General

The nation-wide diffusion of the new educational system and teacher training activities have brought changes not just in the education of demonstration and cooperating schools. While it is difficult to quantify such changes, it is necessary to discuss the effects of such diffusion on the Korean elementary education in general. In addition, it is clear that the incidental outcomes and effects obtained in the process of implementing the new educational system are not to be neglected.

The diffusion effects or incidental results of the new educational system may be classified into the following for scrutiny: 1) contritution to the education in the field, 2) impact upon the Ministry of Education policy, 3) contribution to academic progress, 4) accumulation of research capacity, 5) improvement in the international status of educational research and 6) building foundation for educational broadcasting.

A. Contrubtion to the improvement of education in the field

The area where the diffusion effects of the new educational system were felt most obviously was the instructional site.

First of all, it convinced the field educators to believe that educational improvement is indeed possible. It provided the opportunity for the re-affirmation of the conviction that improvements in education and in the quality of education can be achieved under any circumstances: in over-crowded classrooms and multi-level classrooms, under inadequate conditions for educational facilities and with insufficient learning materials, under the circumstances in which students' basic ability were lacking and the accumulated learning deficiencies was too serious and even under the conditions in which teachers were suffering from heavy work burden and low morale.

Second, on the basis of such faith, extensive efforts to bring about educational improvements have manifested themselves. Boards of

education or offices of education made various kinds of efforts in adopting demonstration schools and cooperation schools as leading schools or "center schools" for regional educational development. Without exceptions, these schools carried out their obligations as subject schools designated by city and province or city and country, and held open classes or research report conferences, twice a year on the average, and played their roles as center schools within the cooperation system. In addition, these school also played the roles of disseminators of informations on the new educational system. KEDI's numerous kinds of teaching-learning materials, research materials and training texts were distributed using these schools as channels. It was also common that these schools would collect teacher's guides or workbooks already utilized and donate them to neighboring schools as reference materials.

Third, the study on the new educational system also provided no small contributions to the improvement of guidance ability of those in the field supervisory community. As it was in the numerous training meetings, which were held at several places across the country, diverse kinds of training texts or periodicals, such as research reports and "Field Education Research", provided the momentum for self-development which is equally important within the field supervisory community.

B. Impact upon the policies of the Ministry of Education

The impact which the research on the new educational system had upon the administration or policies of the Ministry of Education, directly or indirectly, is hardly negligible.

First, it was most significant that the theoretical foundations and valuable research experience gained concerning the new educational system could be reflected on the development process of the new educational curriclum and textbooks which were planned to be utilized starting in 1983. The development of educational curricula and textbooks certainly is an important part of the project that determines the

basic directions of public education and had a great influence upon the reality of school education. In this respect, this project was carried out through the participation of a greater number of people concerned and upon a wide-range of theoretical principles. However, it is quite nautral that, for this project, the educational theories that were streamlined and confirmed through the process of about three years of research and development and about five years of field application should be transferred to new studies.

Second, the research on the new educational system had a rather direct influence upon the development of textbooks. This influence was derived largely from the following two aspects. One is the influence of KEDI's own general theories on pedagogy, and the other, that of theories concerning subject education which KEDI has developed. Teaching-learning theories based on the general model of the instructional system are characteristic of KEDI's general education theories. These theories are now reflected in "teacher's guides", one of the newly developed materials. And, the "subject instructional system model" developed from subject education theories is becoming the theoretical basis for subject guidance methodology under the new educational curricula. Along with these, it should not be denied that the following changes which take place in the development of new textbooks are the results of KEDI's research experiences: 1) former textbooks for the lower grade levels of primary school were displaced with integrated type textbooks. (2) the orientation programs for the guidance of first grade beginners were systematized; 3) reflected content of previous curriculum which must be included 4) the format of lower grade level textbooks was extensively renewed and 5) a policy was made that "teacher's guides" must be developed.

Third, there is the influence on the implementation of the system in which teachers were used for departmentalization of instruction for Fine Arts and Physical education(P.E.) subjects. Of course, there has actually been previous research concerning the departmentalization system for Fine Arts and P.E. subjects before KEDI's study. However,

in most of those researches, they specially utilized additional teachers to conduct the research in private elementary schools or various schools with superior conditions. On this account, such studies lacked the generalizability. Numerous schools now adopted the system of departmentalization for Fine Arts and P.E. subjects under the KEDI attempt to utilize existing teachers organization. Since 1979, the Ministry of Education designated and operated research schools with the instructions for Fine Arts and P.E. subjects under the departmentalization system, across the nation and encouraged its positive utilization. A survey of the administration in these schools will show the degree of influence which KEDI's research had on it.

C. Contribution to academic progress

Another achievement of the new educational system research is its contribution to academic progress.

What deserves to be pointed out first is that educational theories, suitable to the reality of Korean education were systematized and established. By extensively analyzing and examining numerous kinds of educational theories, educational theories that can solve the existing problems and embody the spirit of current educational curricula were established in the field of education in Korea. Concrete measures to solve the problems in the educational field included the following: 1) the adoption of the systems approach and the development of the instructional system and school management system, simultaneously, 2) the adoption of the general instructional system model which was planned to provide lessons which consider individual differences in large-sized classes, 3) the development of student workbooks so that the classes of above a certain level might be conducted even though present instructional materials are deficient, 4) the development of teacher's guides for teachers with little time for curriculum study because of work overload, and 5) the adoption of measures such as the management by objective, grade management system and coopera-

tive instructional system, and so on, to raise the rationality and efficiency of school management while continuing under the current school personnel organization. And, systematizing them on a theoretical level and organizing them into an educational system theory can be said to be one of the valuable academic fruits.

Another important product is the systematization of theories to embody the spirit of the current educational curriculua. The current educational curricula, which have been enforced since 1973, are based upon the theoretical position of discipline – centered educational curriculum and therefore, require teaching-learning theories and educational evaluation theories along with a view of education and educational curricula that would be suitable to the position. In the new educational system, relevant theories are arranged consistently and are concretely specified: 1) it systematized the instructional planning, the teaching-learning process, and the educational evaluation activities through a general instructional system model and 2) in the planning of unit instruction, it improved the previous instructional planning methods based on the experience-centered educational curriculum, which arrives at the instruction planning by starting from learning task analysis.

Second, it established subject instruction theories through the development of the subject instructional system models. In accordance with the purposes of current educational theories, the selection of contents in each subject emphasizes basic conceptual framework and adopts "inquiry learning" of "discover learning" as learning methods. It is undeniable that there have been no appropriate guidance theories nor methods to uphold the adoption of such elements.

The subject instructional system model which KEDI developed properly applies its spirit to each subject area in its first stage, but it has a greater significance in that it academically systemmatized the guidance methods to embody the spirit of the educational curricula in each subject. And, the results of this research are provided as inputs of precious experience into the educational curriculum development

process which is now being undertaken.

Third, the teaching-learning materials which were developed through research on the new educational system have also contributed to elevating the quality level of learning materials in Korea one step higher. In the development of learning materials, educational specialists, subject area specialists, professional researchers and in-service teachers constituted an integral team to carry out the project. Moreover, these materials were confirmed by revisions and supplementation with field inputs, and they improved greatly the level of learning materials of primary schools, in particular.

D. Accumulation of research capabilities

One of the additional achievements which the research on the new educational system has brought about and which cannot be omitted here is that it produced a ready store of research manpower and contributed to the accumulation of a wide range of research capabilities. While passing through the process of system development for about three years and system domonstration for some five years, those who participated directly in this research, acquiring valuable research experience, numbered about 300 persons, and those who were able to arrive at a high level of academic competence through the training abroad numbered an additional 30 persons.

First, those who participated in the research on the new educational system as KEDI researchers number about 150 persons and covered such diverse fields as the research on educational objectives, development of instructional systems, development of a school management system, development of diverse teaching-learning materials, operation of demonstration projects, research on innovative diffusion, research on teacher training system evaluation research and broadcasting media research.

Second, those researchers who have been trained abroad in connection with this research total 32 persons of which 27 have either

obtained doctorate degrees or are presently pursuing their doctorates. Many of them have already moved on to higher education institutions and are taking charge of cultivating newer generation of scholars.

Third, outside experts such as college professors or in-service teachers became sources of information or participated directly in the collaborative joint studies. These amount to about 100 persons.

Fourth, those in-service teachers who received KEDI's direct training to participate in material development, and who were involved in the development of the draft proposals for teaching-learning materials on the basis of that training, numbered 145 persons.

The accumulated research experience by a great number of people mentioned above has a great significance in that they were able to comprehend knowledges in related fields through frequent seminars and consultations, which did not end with the understanding of merely those fields of which they were involved in. Furthermore, this research manpower is now becoming an important influence in every domain of educational activities.

Research on the new educational system has brought countries around the world to a better understanding of the educational research capability of Korea, and thus, has contributed to the promotion of Korea's international status in educational research.

The following examples would bespeak this fact: 1) the Asian Center of Educational Innovation for Development (ACEID) designated KEDI as one of its cooperating organizations in October, 1974, 2) the International Evaluation Association (IEA) designated KEDI as a member institute in September, 1979, and 3) the Encyclopedia Britanica Educational Corporation appointed KEDI one of the World's Ten Educational Research Institutes acknowledging KEDI's brilliant achievements in educational reform.

In the last eight years (1973-1980), international meetings held by KEDI number at least eight, starting with the first meeting held by KEDI in 1974 with the invitation of American educators such as Dr.

Robert Morgan, Dr. Gagne, Dr. Paul Masoner and seven other scholars for their evaluation of the Korean Elementary and Middle School Development Project. Since that time, KEDI has held international meetings at least once a year. KEDI's international meetings were mainly held with ACEID and featured educational experts from the Southeast Asia region. Besides, it has been common that distinguished scholars from throughout the world, being interested in KEDI's research, have made personal visits to KEDI. Twenty-five educators including B.S. Bloom, R.M. Gagne, J.O. Bolvin and a host of others have visited KEDI and presented their lectures. Those scholars who visited KEDI for the purpose of observing KEDI's research projects have amounted to about 400 persons from 27 countries (Table V-6).

In addition, there has been a countless number of foreign trainees who have been trained or studied at KEDI. From Southeast Asia to the Southern Pacific region, educators from Thailand, Nepal, Sir Lanka, India, Pakistan, Bangladesh, Indonesia and Papua New Guinea have demonstrated interest in KEDI's new educational system and have visited KEDI for training. From 1974 to 1980, a total of 63 persons have received training through 81 diffent training programs. Meanwhile, KEDI's own research teams have directly participated in the development of educational curricula and the educational systems of foreign countries and have provided assistance and suggestions. Those countries which were thus guided by KEDI include Afghanistan (1975) and Saudi Arabia (1978).

The evluation results of the foreign evaluation team concerning research on the new educational system also became useful materials. The Foreign Evaluation Mission was organized in May, 1976, for the purpose of systematically analyzing KEDI's establishment, developmental process, and projects and of evaluating the degree to which KEDI was effectively carrying out operations to accomplish its original objectives. The Foreign Evaluation Mission consisted of seven professors from the University of Pittsburg, U.S.A. and two Korean college

professors. This mission visited KEDI and collected materials once or twice a year from 1975.

The evaluation results of this mission are as follows:

Though the Elementary and Middle School Development Project actually implemented had many differences from the project proposal offered by the Florida State University Team and from KEDI's own project proposal of 1972, their principal factors were included. It is evident that the new educational system improved the academic ability of students in the demonstration schools and reduced regional differences in the degree of academic achievement. It is also evident that parents, teachers and school masters support the new educational system. And, the new educational system evidently also contributes to the changes in the student's higher thought learning processes.

E. Building the foundations for the realization of educational broadcasting

One of the important harvests from the research on the new educational system is that foundations were built for the realization of educational broadcasting.

The plan of educational broadcasting originally aimed to provide instructional television and radio programs as teaching-learning materials. Therefore, in the first comprehensive demonstration undertaken in September, 1975, these programs were scheduled to be provided as inputs into the demonstration as a part of the educational system. However, as the construction of the T-COM transmitting network adopted for the transmitting of educational broadcasting failed due to several technical difficulties, the establishment of Educational Broadcasting Station was also detained. Because of this, TV and radio programs, which KEDI had originally considered were not utilized.

Regardless, KEDI continued to make efforts to develop programs. These programs, which have been developed up to the present,

extensively cover not only instructional TV programs and radio programs, but also subject education programs, teacher training programs, career guidance and technical education programs, programs for parents and programs for adults.

KEDI aired over its own radio station an average of 4.5 hours of programs a day, including those programs for "Radio School Broadcasting" which had been taken over and operated by KEDI since its establishment and the production and broadcasting of radio programs for the Air and Correspondence High School which began in 1974. In this way, KEDI's research staff, production staff and technical staff have been amassing an autonomous capability in preparation for the opening of full-scale educational broadcsting.

While receiving governmental and public attention in matters of educational broadcasting, KEDI opened a new chapter in the educational TV broadcasting by initiating the broadcast of "High School Educational Broadcasting" on September 1st in accordance with the "Educational Innovation Measures" of July 30, 1980. Now the government plans to provide TV and radio programs in education by opening a full-scale educational broadcasting station in February, 1981. When the educational broadcasting station is opened for normal operations, its impact upon Korean education will be enormous. And Korean education will take a major step forward in its modernization. Though there have been fluctuations, the new educational system left a definite contribution toward the building of foundations for the realization of educational broadcasting.

Table V-6 Status of Foreign Visitors to KEDI*

Year \ Country	U.S.A.	Thailand	Japan	Singapore	Indonesia	Hong Kong	Australia	Nepal	Sri Lanka	New Zealand	Uruguay	Malaysia	Saudi Arabia	Iran	Taiwan	Bangladesh	France	Germany	Mexico	Vietnam	England	Philippines	Burma	India	Afghanistan	Chile	Netherlands	Total
73	10		1				1											3			5							20
74	16	2				1																						19
75	22	2	2																									31
76	57	16	3		4				6	1	1	4			17	1		2			1	6	1	1	1			122
77	16	20	2		13			2	5				2	1		1		1	1		1	3		5				73
78	30	1			6			4		1								1			1			15				59
79	11	8	1	3			1	4	1			5			5		2				2	1				1		45
80	2	5	1		4			2	1							8					4	1		2			1	35
	164	54	10	3	31	1	2	12	13	2	1	9	2	1	23	10	5	4	1	5	14	11	1	23	1	1	1	404

* Indicate only those visiting to observe the educational reform project.

CHAPTER VI. DISCUSSION AND PROSPECT

1. Summary

A. Background of the Project

The purpose of the Korean Elementary-Middle School Development Project was to create an opportunity for the reforms in elementary and middle school education by developing a new educational system, appropriate to the educational reality of Korea and applying it to the field. This project was initiated based upon policy proposals made in the long-term comprehensive educational planning process introduced in 1970 and suggestions made by a study team of professors from the Florida State University, U.S.A. which visited Korea to help diagnose the problems of Korean education upon the request of the Korean government. This project was undertaken as the result of a national-level policy decision to solve numerous problems in Korean education comprehensively and systematically and thusby providing a historical impetus in the development of Korean education.

KEDI was established in August, 1971 with undertaking of this major research project as its primary responsibility and the government has continued to provide KEDI with the necessary administrative and financial support through the enactments of the "KEDI Promotion Law" and other related Provisions. KEDI concluded that, in order to solve the problems with which Korean education was faced in various fields comprehensively and systematically, the development of a new educational system was, most of all, necessary.

B. Research process

Research on the development of the new educational system was accomplished through the following four stages: 1) system analysis,

2) system planning 3) demonstrative implementation of the system, and 4) evaluation of the effectiveness of the system.

For system analysis, KEDI extensively analyzed the problems of Korean education in various areas and pursued relevant measures for their effective solutions.

In the process of system planning, KEDI extensively consulted a wide-range of related theories and previous studies from both domestic and foreign sources, and made efforts to adapt them to the educational reality in Korea. For system planning, it established the intrinsic and pay-off goals and designed an instructional system as well as a school management system to accomplish these goals.

The instructional system was based upon the general instructional system model. Printed materials, such as teacher's guides, student workbooks and evaluation materials, as well as broadcasting materials, such as TV and radio programs were developed and utilized as teaching-learning materials in the instructional processes. In the school management system, the management-by-objective system was introduced for the efficiency of school management and the grade level management system and, the cooperative teaching system and other sub-systems were also adopted.

The development of teaching -learning materials was accomplished for all grade levels, all subject areas and all units of instruction at the primary school level based upon the general subject instructional system model. It was a vast project which was undertaken from 1974 and completed in 1978.

The evaluation of the system was carried out through four small-scale tryouts. While expanding the subject areas and the sub-components of the system to which it was applied in each tryout, KEDI analyzed and examined its theoretical validity, practicality and efficiency, and using the results as inputs, continued to revise and supplement the system.

To determine the effectiveness of the system, comprehensive demonstrations were carried out for about five years from September,

1975 to 1980, while selecting demonstration schools across the nation as its target. In comprehensive demonstrations, KEDI, expanding the sample grades annually, analyzed and evaluated the applicability, efficiency and resultant problems of the new educational system when it was applied to schools in the field.

C. Effects of the Study

Through comprehensive demonstrations, the following effects were confirmed.

First, the degree of student academic achievement was improved as a whole, the number of students obtaining the mastery level of instruction was increased, and the higher thought process of students was extended. Also, the research accomplished a number of achievements in reducing the difference in academic ability among individual students, classes and subject areas as well as those between urban and rural areas, the urban-rural gap having been one of the chronic educational problems of Korea.

Second, in the domain of affective characteristics, the student's independent learning attitude was improved, the student's expressive ability was improved and a positive self concept concerning academic learning was formed. In addition, interest in learning and a spirit of cooperation among classmates also showed improvements.

Third, the school management system was much more rationalized and the management of educational curricula was raised in quality. Also, the opportunities for the teachers to participate in school management have increased while their workload was reduced.

Fourth, in terms of the quality of teachers, the teachers greatly enhanced their subject guidance and instructional skills.

D. Diffusion of the educational system.

After the launch of the comprehensive demonstration study,

KEDI concentrated its efforts on the nationwide diffusion of the new educational system. While the nation-wide diffusion of the new educational system was a natural process considering the basic objectives of the research project, the diffusion process began one month after the launch of the first comprehensive demonstration, one month a head of schedule because of heavy demands from the field.

In order to be cautious, KEDI restricted its diffusion first to the cooperating schools designated by respective city or provincial boards of education. For permanent settlement of the new educational system, training programs such as intensive training, field training as well as various types of training materials were provided. But since 1978, when the effectiveness of the new educational system was sufficiently confirmed, bolder diffusion effort was given by providing teaching learning materials even to ordinary schools. For this to have become possible, objective evaluation and policy decisions by the Ministry of Education have preceded. Also, as one of the long-term measures for the diffusion of the new educational system, KEDI had studied the linkage between teacher's colleges and the education in their attached elementary schools.

E. Influences on Korean education in general

The new educational system project contributed much beyond the targeted groups of the study.

First, it produced an adequate environment for the improvement of education by leading the innovations in the field of education.

Second, it had exerted a profound influence on the policies of the Ministry of Education in connection with the development of educational curricula and textbook materials and with the system of instruction by departmentalization of subject areas.

Third, it also contributed to the developments of educational theories that would be suitable to the educational reality of Korea and to the systemmatization of educational theories on subject areas upon

which the spirit of current educational curricula can be grounded.

Fourth, by producing an abundance of research manpower and accumulating the vast research experience, it improved the capability and the quality of educational research in Korea.

Fifth, it contributed much to the improvement in the international status of Korean education with educators from throughout the world acknowledging the capability of educational research in Korea.

Finally, KEDI's efforts to develop TV and radio programs, though it did not meet the level of its original objectives, provided the grounds for the realization of educational broadcasting.

2. Further Hopes

Reflecting back on the process of the new educational system project, which was carried out for about eight years since 1972, still some after-thoughts remain.

First, the "Middle School" segment of the educational system was not developed as originally intended. As the title, the "Korean Elementary and Middle School Development Project", suggests, this project also planned to develop the middle school portion of the educatonal system, but it did not fully achieve its original goal. Due to various circumstances after the launch of the project, budgets and manpower were limited, and did not meet the level projected in the original plan. Therefore, KEDI decided to first concentrate its research on elementary schools, and then to undertake the study on middle schools. During this process, KEDI was newly given the responsibility to develop the Type II textbooks (50 volumes) by the Ministry of Education in 1978. And consequently, KEDI now was in exclusive charge of the entire project of revising the curriculum, making it difficult to provide additional input of manpower, and thus, could not but alter its original plan. It is necessary here to point out that KEDI was still prepared to carry out the middle school project, since it had already completed

a small-scale tryout for the development of the middle school educational system sometime ago.

Second, broadcasting materials such as TV and radio programs were not systemmatically developed. As mentioned before, the decisive reason was that the T-COM type which had been adopted for transmission system failed to be installed due to some technical difficulties. But, the anticipated hope of KEDI to operate an active educational broadcasting system is to be realized in the near future, because the government is planning to provide KEDI with a micro-wave transmission system by the end of 1980, and to open a full-scale educational broadcasting station by February, 1981.

It is evident that the experience that KEDI has been accumulating in the broadcast operation, from "Radio School Broadcasting" and "Air & Correspondence High School" along with the development of TV programs which are continuously being produced and preserved, and the accumulated capability from the development of programs for the "TV High School Educational Broadcasting" which began in September, 1980. They will be the very foundation for the operation of educational broadcasting in the future.

3 Future Tasks

A. Current status

The research process of the new educational system can be divided largely into 'the system development period' and the 'system demonstration period'. The system development period was between 1972 and 1975. During this period, the new educational system was envisioned and the theoretical feasibility and practicality of the project was confirmed through the small-scale tryout. This was the research period which consisted of three stages: 1) system analysis, 2) system planning, and 3) demonstrative implementation of the system. On the other hand, the system demonstration research period is the research period for determining the effectiveness of the new system from the first com-

prehensive demonstration in September, 1975 to the fifth comprehensie demonstration in 1979.

The period from 1980 on can be regarded as the system's expansion and establishment period. In other words, the research process had been culminated with the completion of the fifth comprehensive demonstration in 1979. And the period beginning in 1980 can be considered as the period to place much efforts toward a nation-wide establishment of the new educational system. This period should be considered to last till 1982, after which, in 1983, the educational curriculum of elementary school, now in revision process, would be implemented throughout the nation.

It is now necessary to examine the circumstances within which the new educational development project is currently in.

First, the research activities related to the development of the new educational system had been culminated as of 1979. The development of the first grade portion of the teaching-learning materials was completed in 1978. Thus, the entire first through-six grade materials were provided as inputs into the fifth comprehensive demonstration, carried out in 1979. With this, the elementary school portion of the new educational system project has ended.

Second, the evaluation on the effectiveness of the new educatonal system was completed by the Ministry of Education and by foreign experts as well as by KEDI itself. KEDI has completed its own evaluation of the project by submitting the report on the fifth comprehensive demonstration. And, the evaluation report by the Evaluation Committee requested by the Ministry has also been submitted already in 1978. Furthermore, the evaluation done by a team of professors from the Florida State University, U.S.A., under the request from USAID, have also been completed, thus ending the official evaluation.

Third, the willingness of the field to accommodate the new educational system was indicated to a considerable extent. The city and provincial boards of education and district offices of education have adopted the diffusion and establishment of the new educational system

as one of their priorities. The level of awareness demonstrated in the field on the new educational system is quite high due to the utilization of a cooperative learning system, centered around demonstration and cooperating schools. Furthermore, many teachers became very familar with the new educational system based on their actual participation and experience at demonstration and cooperating school during the implementation process. These teachers are now placed throughout the nation playing important roles in the establishment of the new educational system.

Fourth, the new educational system has already entered the universalization process by providing the teaching-learning materials to all schools requesting them. An official figure indicates that over one-third of all elementary schools in the nation were adopting the material in 1980.

B. Future tasks

Several steps need to be facilitated by KEDI, with the assistance from the Ministry of Education, as the new educational development project nears its completion.

The most important is the need for a more active measures to diffuse and settle the outcomes of the research on the new educational system in the field. This research project was undertaken with the recognition of the national need and was implemented with the financial support from the government. It was then diffused throughout the nation based on an objective evaluation by the Ministry of Education. However, the universalization goal of the project has not quite been reached because a firm policy was not made concerning the diffusion expense of the student workbooks, which play a very significant role in the operation of the instructional system.

It would be most desirable for the government or the board of education to provide the budget necessary for the diffusion of the

workbooks. But, if that is difficult, the burden of the cost can be borne by the beneficiary of the program. Use of the workbooks largely reduces the cost for notebooks to students, in general. In this sense, the parents of students, thus, would not be subjected to an excessive financial burden. But, it was often argued that such measure would be against the principle of the free compulsory education. Still the rationale for the measure can be modified depending on how free education is defined. The criteria of policy decision on the diffusion of the workbook should be based on the degree of possible contribution that can be made on the national education. It is worth the effort to re-examine the possibility of having the beneficiary paying part of the cost, particularly when the extension of "education tax', a new and temporary source of revenue to finance educational reform, is being re-considered.

As such, the Ministry of Education should attempt to reflect on its long-term policy, ways to ensure that the research results of the new educational system would contribute to Korean educational development. It is important to note that the end of the research on the project does not imply an end of research outcomes, and to consider that the implication and the accrued investment for this research project had been too enormous.

Second, it is necessary to attempt to actively link the research outcomes of the new educational system to the revision efforts on curriculum and texts now being carried out. The theoretical foundations and experiences systematized and polished through the new educational system project will be reflected in the elementary school curriculum and instructional materials of subject areas (teacher's guides textbooks), which are now being revised with the enforcement target of 1983.

It is certain that the schools which are smoothly applying the new educational system are that much more at an advantage in implementing the new curiculum. And it is also certain that as the new educational system is widely established in the field, the spirit of the new

educational curriculum and subject area instruction would also be come easier to improve.

This would provide some important implications related to the implementation of the new educational curriculum. First, it will contribute by providing a theoretical foundation in the nation-wide teacher training, which will be carried out for the implementation of the new curriculum. Next is that the instruction in demonstration and cooperating schools would provide a good model in showing specific instructional methods required by the curriculum.

Therefore, KEDI and the Ministry of Education should expand its cooperation system in the process of preparing the new curriculum and in its early implementation.

Third, KEDI has the remaining task of an overall finalization of the research process up to now at a more comprehensive scale and with a new perspective. Many related reports are now accumulated and the demonstration study reports are continuously being published. These data are now waiting to be synthesized and systematized and to be turned into a comprehensive research data of higher quality.

In addition, the comprehensive report on the new educational system project would more than synthesize the results of the research up to this point. It can very well provide an excellent guide to a new educational innovation project of the future.

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